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THE AUTOMOBILE

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WOMEN'S FASHIONS AT THE PARIS SHOW.

Written for THE AUTOMOBILE by Mme. Berthe Mendes.

PARIS, Dec. 23.—In the dazzling blaze, under the flare of the flashlights and the soft radiance of long wreaths of fairy-lamps, one endeavors to reach the Grand Palais. I may well say endeavor, for the crowd is hundreds deep, and hustle is the order of the day. We managed to slip through somehow. A motor whirrs in our ears, a horse breathes on our neck. The hall is crowded to overflowing; crowded are the staircases and galleries. Through a reddish dusty haze we catch sight of a sea of human faces, of pointed palm leaves, of gleaming brass, of walls, of gay bunting and brilliantly lighted ceilings. A fair hand turns the handle of a brougham that is on show. We hear the sound of music and singing.

Each builder has erected in front of his motors a sign-board shaped like a porch-way. You have a strange feeling of walking among weird resplendent buildings, in a modern cosmopolitan Pompeii, in the lurid light of the arc lamps. Porches are of many shapes. There is not yet a "motor style" of architecture, though, no doubt, there will be one some day, for at one time there were no motoring fashions for women, and now there are! To realize this you have only to stroll round the Automobile Show, when you will notice that among the motley, surging crowd the fairer sex are numbered by the thousands.

Let us follow the stream of fair visitors. Whither does it lead us? To the coach builders' stands? No! To the engine stands? Never! Whither, then? Why, to the stands of motoring garments, for which a lady's paper has opened a prize competition in order to ensure for the fair sportswoman every grace and every fascination! How far ahead we already find

EXHIBIT OF COSTLY FUR GARMENTS FOR SM PARISIENNES IN THE 1904 FRENCH SALON.
Cloak on left in gray squirrel. Cloak in centre in white Breechwen caracule. Cloak on right in Cheetah with Sica stole and Jaguar cap.

ourselves of those early days when motoring first became the craze! Then women rigged themselves up anyhow, there was no special get-up. Little by little this was evolved until to-day we have a regular fashion, which undergoes transformation and makes what was worn yesterday appear out of date.

This sporting fashion for women is what we are about to pass in review.

On the first floor of the Grand Palais opens a series of galleries, to which access is obtained by a large circular balcony overhanging the exhibition proper of motors and their accessories. It is in these galleries that the different stands have been erected. On large baize-covered platforms, in all manner of striking attitudes, are to be seen long lines of wax-work figures, so artistically real and lifelike that you feel certain they must be sweet and delightful young ladies, dressed to perfection, and who have come there to be admired.

The first stand that attracts our attention is one where we see a tall, handsome young lady, dressed in a long jacket of some blue, fluffy, woolen stuff, dotted with white spots. A narrow edging of green leather relieves the monotony of the coloring, the folds of the jacket are tucked into a broad leather belt with a square gold clasp. A white leather collar forms revers.

The sleeves are wide, and their fulness is gathered into folds encircled by straps of green leather. A hood shaped like a diver's helmet, finishes off this costume, which we plead guilty to admiring, but which would certainly have startled our grandmothers if it had been given to them to meet on the streets women dressed like that! Well, well, time brings about wonderful changes!

Is this not the age of the automobile?

Further along we find a long fur cloak that we admire exceedingly. It looks warm and comfortable, and it may be said to be perfectly harmonious, which is more than can be said of most fur cloaks. Hanging down to about a hand's breadth from the ground, it covers the whole of the body and effectually shuts out the unwelcome dust.

A wide hood, reminding one of the *mante de Manon*, finishes off the whole with the most pleasing effect. You can imagine nothing prettier than the soft fur, falling in folds around the face, casting over it such a soft shadow that the plainest features must appear delicate and pretty in such a frame. Ye homely matrons, there is hope for you yet!

The cloak has wide sleeves, that can be turned up to form revers.

By its side, and quite as useful, if less pleasing to the eye, is another long fur cloak with deep revers, and turn-down collar. A close-fitting hood of the same fur covers the head of the flaxen-haired wax doll that wears it. On top a dainty little hat of the same material as the cloak and hood.

In point of style we do not feel so much attracted to this garment as to the preceding one.

Here is a grey dress with a reddish thread running through it. It is of princess shape —that is, skirt and body cut in one—but the fulness is gathered into folds. Along the front of the bodice are four buckles of red leather. The waistcoat is formed by a *de 'passant* of leather of the same color.

There is no gainsaying it, the mixture of leather and cloth or wool seems to be the height of fashion. Few, indeed, are the costumes in which it has not been attempted to blend the two with pleasing effect.

SMART HEADGEAR IN LEATHER, CLOTH AND FUR

Le Coupe Vent. Le Nautilus. L'Auto-Beret. Cap Stoessel.

Almost by the side of the last is a stand, where, in our opinion, the smartest costume is exhibited that can be used for purposes of sport. No special pains appear to have been taken in its conception, and yet it is perfect at all points. It is simple and *chic*. I will describe it in detail.

A pleated tartan skirt cleverly contrived so that the plain blue shall form the folds and the pattern the space between. This pleated skirt is composed thus: three folds, a space, three folds, and so on. The folds are stitched half way down, opening out at the bottom.

A tartan waistcoat with a yellow edging and yellow buttons.

A plain blue bodice matching the blue of the tartan, upon which is embroidered a motor-car wheel.

The name of the designer, Antoine Hubert, is already in every one's mouth.

Almost every lady motorist in Paris, renowned for her good taste, has stood before this stand. If I were asked to assign a prize, it is certainly on this costume that I would bestow it.

In the same gallery another stand attracts a good deal of attention. It is perhaps not very taking to the eye, but its designer has sought after originality. He has sought, and he has found.

The originality consists in this: It is woman in the year 2000. With her grey knickers and purple jacket and her black topper, she is like nothing so much as a poor carnival masquerader. Every one goes into fits of laughter; and what jeers and jibes!

"Have you seen the woman of the year 2000?"

"Yes."

"What do you think of her?"

"That if women are ever to look like that it will be high time to give up the world, the flesh and the devil."

Further on another dialogue between two well-known *Parisiennes.*

"How did the woman of the future strike you in her weird get-up?"

"Do you mean the fashion of the year 2000? My dear girl, what a shame! To think that any one would dare to make such guys of us! It is fearful, it makes me mad."

"The contriver of such a scarecrow should be burned at the stake."

"I say, the man may be an abominable wretch, but the punishment is severe, it strikes me."

"Come, come, to be burned by a lot of pretty women should not be so very terrible."

And the fair sightseers move on.

Let us also follow the paths strewn with all the delights and elegance of sport.

We stop some time before the stand of a great furrier. What a realm of delight! The delicate, white, fair-haired creatures, fashioned in wax, draped in the austere folds of those magnificent furs. How far behind us we have left the unsightly goatskins worn in days of yore.

Of the three cloaks exhibited at this stand, which would one choose?

This is the exact description of all three:

The first is a long, ample cloak hanging down to the ground, made of white reversible "Caracule-Breechwen."

Jacket and adjustable skirt of dark material, red waistcoat with gold buttons

Very smart costume for town wear but not quite suitable for touring in the country.

Blue woolen driving suit "Micaud," considered very "up-to-date," edged with green leather. Note helmet-shaped hood.

THREE NOVELTIES IN COSTUMES FOR CITY AND COUNTRY DRIVING. COMBINATIONS OF LEATHER OR CLOTH AND WOOL ARE THE "HEIGHT OF FASHION" IN PARIS.

A stole hangs over the shoulders, tapering off into two long, narrow bands, falling to the hem of the cloak and looped up here and there with silk braiding.

Wide sleeves of "Caracule-Breechwen," with broad beaver revers. Over the hair a cap fitted as a face protector.

It is this face protector that, when thrown back, forms the stole. It is the acme of cunning arrangement.

The second cloak displayed on the same stand, and which also takes our fancy, although it is not quite so smart, is made of gray squirrel medallions. This is a new fur devised purposely for motoring.

A moleskin cap is worn with this garment.

Further along is a jacket of Cheetah, with a Sica stole and a Jaguar cap. What a mouthful!

If a woman does not look lovely in such a combination of high sounding epithets, she must really be a hopeless case.

What has become of the old-world simplicity of our grandmothers?

Before we proceed any farther in our excursion into the domain of garments let us just glance at the exhibition of caps and hats. It appears to us that there was room for great improvement in the art of devising motoring headgear. It has been hitherto the most defective part of the get-up.

A giant stride has just been taken. I mentioned the dress liked best of all, and in the same way I will here enumerate the different sorts of headgear that met with general approval.

All honor when honor is due.

Here is first a very pretty hat in a woolly dark brown cloth lined in white, so that the lighter color shall set off the face. Two white wings of Mercury are attached to the front of the hat, round which is wound a spotted double net veil. Double-net veiling is not usually very becoming, but here, on the contrary, a woman looks perfectly charming under it.

This is how the hat is composed. Made of numberless *mica sequins* sewn close together; it is covered over with a pretty veil of black lace.

Thanks to this combination, which, by the way, has been patented by its designer, it is possible to do away with the monstrous use of goggles, and of the broad strips of mica, behind which a woman's face is sudden like those of prisoners in dark and cheerless gaols.

The same exhibitor, with the object, no doubt, of emphasizing to the full the advantage of his invention, has placed by the side of his hat the old headdress as worn hitherto.

Oh, what a fright! A scapin cap, made of light tussor, with veil to match, in which is inserted the sheet of mica against which we have just been inveighing. A passing sightseer gives vent to the following sarcasm:

"I thought mica was only used in the doors of patent stoves." Bitter, but true.

SERVICEABLE CLOAKS AND GAY COSTUME CONSIDERED "QUITE NICE."
Black cloak with Otter Collar. Black cloak lined with Gray Squirrel.
Purple dress with medallions of yellow leather.

A short, pleated hood, the creation of the same inventor, tends to prove that he has not merely been content to deal in horrors, and shows, as in the case of his first model, that he studies form and style. His projecting pleated hood of shot gauze, with its broad veil to match, fastened to the side of the hat and hanging down all round like a lamp shade, produces the most charming effect. Not the smallest detail has been neglected that might go to enhance the delicate elegance of this headgear.

A pretty fair head with slightly ruffled hair could do worse than choose such a becoming frame.

Let us now rapidly review the old-fashioned caps hitherto worn.

Gray caps with vizors made of rainproof cloth, with hoods drawn tight round the neck, and concealing the hair, caps made of soft leather, caps without vizors, caps, in short, of every sort and kind, we banish ye from the lovely foreheads more fitted by far for the light kisses . . . of the wind than to be imprisoned in such unsightly coal scuttles.

Now we have sufficiently indulged in criticism, let us see what we can praise, and let us consider what then remains to be admired among the hats.

Here is a Hickel's wind-guard hat for long distance rides, without its equal as a useful headdress; it is made of some waterproof stuff, with detachable vizor and goggles.

The Leon hat of felt and fur also deserves a passing mention, in that the vizor when raised and held in its place by buttons becomes part of the trimming and makes a walking hat of this headgear.

Ah, here is the soft leather again, putting in an appearance in the shape of the nautilus.

The velvet mask, serving as a face-protector fitted with goggles, is said to effectually preserve the wearer from dust and wind. When the vizor is raised you have an elegant walking hat, the goggles being detachable.

Let us now return to the display of large wax dolls, standing in rows in all their finery, and gazing down at us with their light blue eyes, which seem to say: "This way, please, it is our turn to be admired." They wear long, straight cloaks made of box cloth, with Raglan jackets, long tussor cloaks, long cloaks of woolen stuff, with fur revers, and facings. They run pretty cheap.

We now come to the stand of the firm that hitherto stalked in pride of place. Let us see if they have risen to the occasion in a manner worthy of their reputation. At first sight you feel inclined to think so, for their large figure with its long cloak of fawn-colored stuff, trimmed with yellow leather, with its wide sleeves encircled at the wrists by facings adorned with leather straps to match the leather on the sleeves, produces an agreeable effect.

Very graceful, too, is that ample storm **cloak, petitgris, lined with yellow silk,** and forming on the one part a skirt with long, wide folds, and on the other a bolero to match, gathered in at the waist and fastened into a standing belt cut in one with the bodice. The facings of the bolero are shaped as bands.

This cloak, while giving the impression of being made in several parts, is in reality all in one piece, which is, without doubt, most convenient for putting on or taking off easily. With this garment is worn a cap-like hat with a vizor, made of the same fur. At the sides, this cap is shaped like a toque. Pearl hat pins serve to fix it and are its only embellishment. In order to protect the hair against the dust, it is covered with a veil of gray gauze, drawn tight under the chin, in a large bow with long streamers in front.

Still wandering among the wax dolls which form such a lifelike embodiment of what a sportswoman of our time should be like, we reach the stands of the "Universal Providers." They too have attempted to lay down the law in the matter of women's motoring fashions. Have they been as successful as the specialists? We think not. If they show some knowledge of sporting costumes (from a useful point of view), they appear utterly ignorant of its possibilities as regards elegance. It should be added that their line is not so much to create smart garments that shall set the fashion, as to vulgarize useful articles that can be used not only by the wealthy, but also by those of more slender means.

We find in these stands the commonplace toques of Columbian beaver; dog-skin jackets, and three-cornered Russian sealskin hats with the common neck protector; costumes all of a piece, skirt and jerkin of soft leather, making the wearer look like an inhabitant of the sea, and much more fitted for life at the bottom of the water than to skim along freely on the highroads in an automobile.

The special shops for sporting outfits known to the votaries of all sorts of outdoor sports also seem to have prided themselves in showing that they too can turn out handsome fur cloaks.

Here is one that appears worthy of being described at full length.

Long and ample, falling down to the ground, and made of undyed beaver skin, it is adorned with a large sable stole. The stole ends in a double clasp formed by sable heads, from under each of which hangs down a cluster of sable tails.

The same trimming goes right down to the hem of the garment, which is very handsome, very elegant, and most comfortable. Round the head is a beaver hood, drawn in at the neck. Over the head a smart three-cornered beaver hat is worn, straight and rather far back on the head. This hat is adorned with a sable head on the right side.

Some of the firms who provide women's motoring garments seem to have made a point of exhibiting only fur costumes, specially designed for winter wear. Can it be that they have forgotten that automobiles are used just as much, not to say more especially, in fine weather. We will attempt to remedy this error by calling the attention of our readers to the large dust-cloak adapted to summer wear.

Here is a sort of long redingote of some English stuff, reminding one of the English ulster, which is very much the fashion with its Raglan pockets on the sides.

In the exhibition, the wax figure that wears the garment has on its head a white Breechwen toque. Elegant and practical,

EXHIBIT OF COSTLY PARISIAN MADE FUR CLOAKS IN AN ARTISTIC SETTING.

Cloak on the left made of Sable fur of Irkutsk. It is very "stylish, light and warm" and an effective substitute for rugs. Cloak on the right of Chinese tiger cat light and warm. Can be worn in all seasons, as neither dust nor rain will spoil it.

this toque forms a hood fastened under the chin with a white satin ribbon. A special show-card sets forth that the toque and hood are also made of some special material for summer wear.

Here is a tradesman who knows his business and thinks of the future.

Next to this redingote, and forming a part of the same exhibition, we find another garment made of English stuff, closing in front by means of a box pleat, inserted in the front part of the bodice. In the back a similar pleat is inserted. Round the waist is a slanting belt. Hood to match, with a strip of mica serving as a veil. Any round boating hat can be worn underneath.

Next we have a rain cloak of waterproof stuff of "directoire" shape, fitted with a very graceful hood, which is neither too full nor too narrow, but keeping a middle course, being neither skimped nor too vast.

Perfection, art thou yet to be found in this wicked world?

skirt with black worsted braid trimmings; bodice to match the cloak; fastened by four leather straps. A patent veil with mica strip.

The exhibition does not only comprise the outer garments, cloaks, dresses and hats. The corset, too, is honored with a wax doll —a revolving doll that seems to display itself on all and every side, and say: "Look at me. Am I not well provided, and are not my *dessous* worth looking at?"

We noticed that it was chiefly the men who stopped to look at the woman in the corset. . . . Of course, it was to be able to bring home useful hints to their wives.

Mr. Pecksniff is ever with us!

But let us return to the special motoring corset, doing away entirely with the evil effects of the trepidation. Made of red brocaded silk, stitched with light gray, it points high in front and comes down very low over the hips. It is said to be practical.

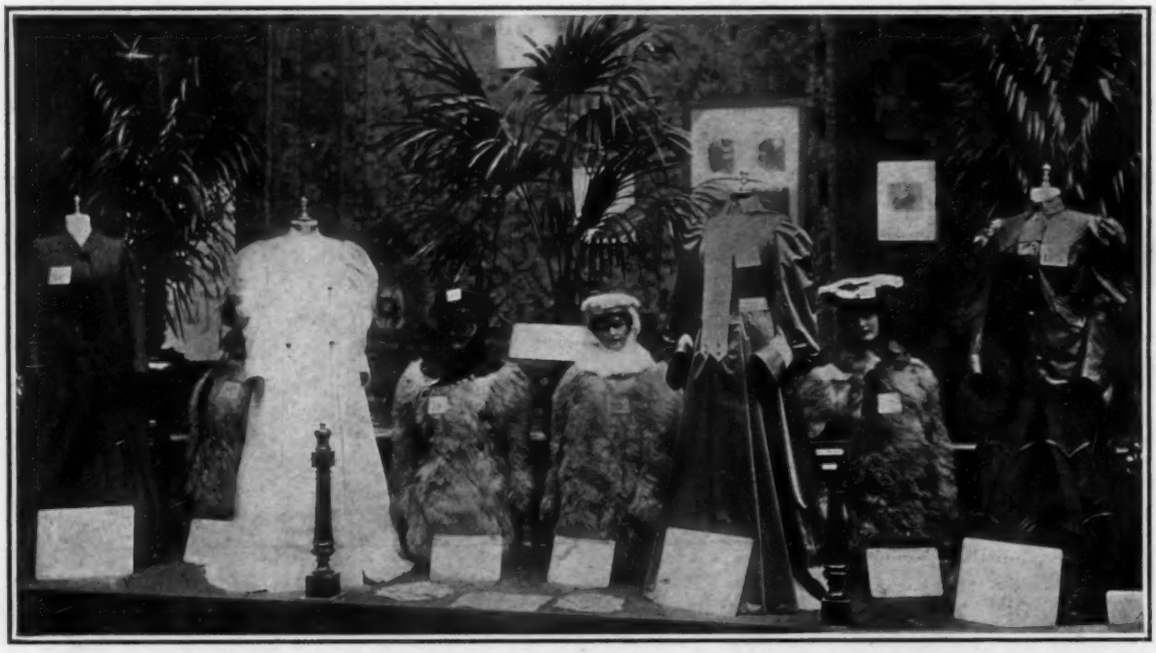
For my part I think it advisable to praise

of real pigskin lined with very warm fur of undyed beaver. These boots keep out the damp in consequence of their special make.

As you see, nothing has been forgotten. A woman who is fond of motoring may remain pretty and yet have all the comfort she can wish for while touring 'round the world.

This is the opinion of a great artist of the Palais Royal, Raimond, who was asked one day to illustrate by an example taken in the world of art, of literature, or merely of society, the features, the physique, or the characteristics which would represent the archetype of the woman of the twentieth century:

"Her hair," he said, "you cannot see;
"Of her forehead, the same may be said.
"Her eyes are hidden behind goggles,
"Her nose peeps forth timidly.
"Her mouth is prudently closed,
"Her ear cares only for the sweet song of the horn.



INEXPENSIVE APPAREL FOR AUTOMOBILING IN FROSTY WEATHER AND RAIN OR SHINE.
Note the dogskin jackets and the Marquess hat of Russian otter.

We are getting to the end of our journeying through the world of fashion. We were reproaching certain tradesmen just now with thinking too exclusively of one season only. Here is a very complete stand, displaying a variety of styles, winter garments, summer garments, and garments for rainy weather.

A large mink cloak, lined in pale yellow, and cut wide. A "Marquis" hat with a white diparant in imitation of white astrakan. White fox around the neck.

A mose useful reversible waterproof cloak, in the shape of a wide redingote with insertion. Strips of cloth stitched upon it serve as trimming.

A large silk cloak, with leather collar, covering a charming costume: dark blue

a new creation, a model corset which is not exhibited. The designer has disdained the Museum of Wax Works, the stands for clothing.

The corset we refer to is made of some special tissue, and has but six whalebones in all. Yet it fits close to the bust and supports it without injuring it. It is the acme of perfection for motoring purposes.

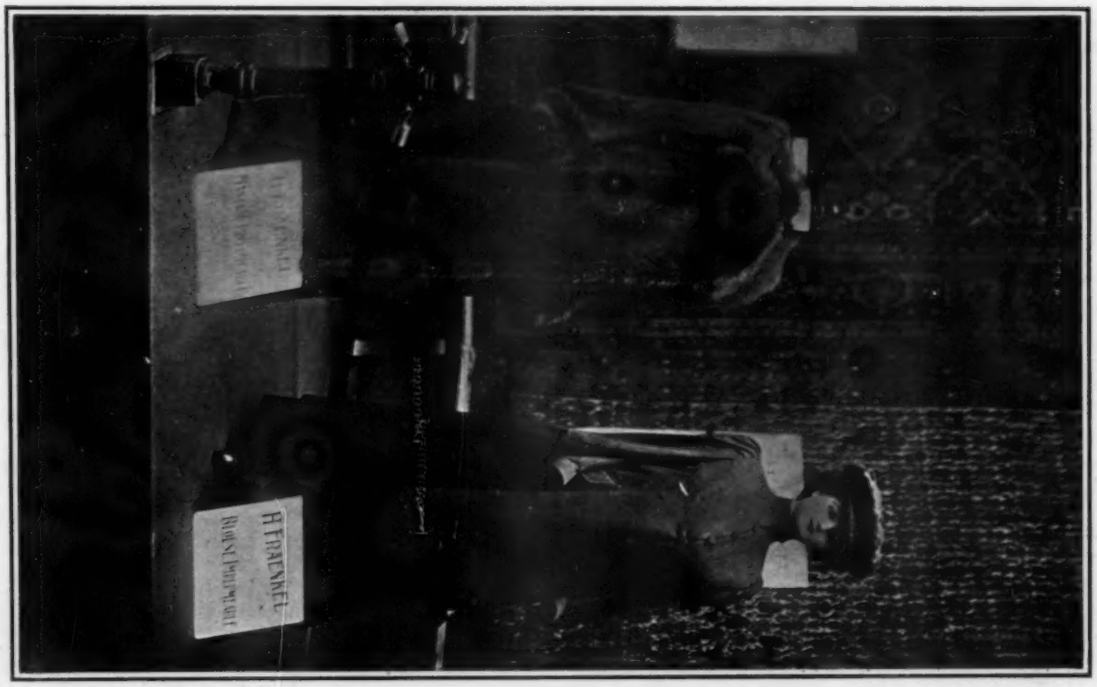
While journeying through the Clothing Department, we had nearly forgotten to mention the subject of footgear. You may think this a very secondary matter, as one is all the time in one's car.

Not a bit of it. Boots and shoes play an important part. It is necessary to keep your feet warm while motoring, and in consequence, special boots have been devised,

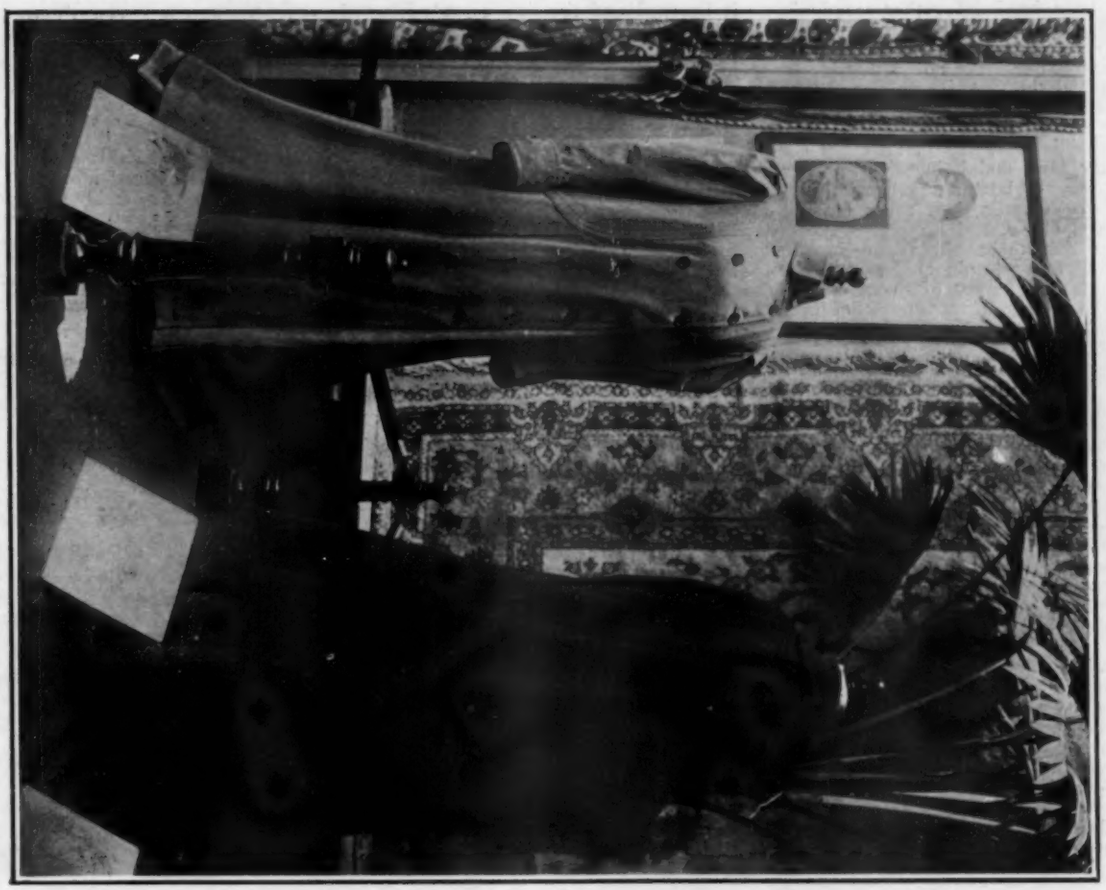
"Her figure bends forward towards space,
"Her hand grasps the driving wheel,
"Her foot amorously caresses the brake.
"Her temper is simply crushing.
"Her mind dwells only on reeling off a hundred and twenty miles an hour,
"Her taste wavers between the chain and the cardan.
"She should be lukewarm, and lives in fear of police traps.
"In short, the woman of the twentieth century should be worthy, both morally and physically of the Chariot of Venus on four wheels that is called a motor-car."

Such is, indeed, the type of the motoring woman of the twentieth century.

What, in the name of Heaven, will she be in the twenty-first?



CLOTH AND FUR-TRIMMED GARMENTS RENDERED WATERPROOF.



FRONT AND BACK VIEWS OF DUST AND RAIN PROOF COATS.

TRADE OUTLOOK FOR THE COMING YEAR.

Representative Manufacturers and Owners Discuss the Development of the Automobile Industry and Suggest Lines of Progress.

IN the development of a new industry the discussion of conditions and tendencies is of high interest not only to those who are engaged in the industry as a means of livelihood, but to those who consume its product. The value of such discussion increases the nearer it comes to being a comprehensive expression of the persons upon whom rests the burden of the industrial development. To this end, therefore, THE AUTOMOBILE has solicited an expression of opinion, based on actual experience, from a large number of the concerns engaged in the production of complete cars and their components, and which will be found in this and succeeding pages. The letters written will be read with lively interest as they cover a wide range of activities in the automobile field from many view points, subject in each case to the intellectual analysis of the author. With slight exception the views are optimistic and that without exaggeration. There is a remarkable unanimity of opinion upon many matters which exert a powerful influence on the industry, present and future. This includes the deprecation of rough riding on the roads, the economical necessity for standardization in manufacture and modern business methods in the salesroom, the construction and maintenance of good roads, and the tremendous possibilities in the direction of commercial vehicle construction. It has been the aim to make this symposium inclusive of all and yet in the nature of things this has not been possible of accomplishment, yet the list of writers is so comprehensive that it may be accepted as the most complete and thorough exposition of the subject yet published.

A. C. A. President's Views.

Editor THE AUTOMOBILE:—

I naturally look at automobiling from the standpoint of the Automobile Club of America, and that standpoint is often either not understood or misunderstood by the public. Some think our club a social organization for the sole purpose of enjoying ourselves; others imagine that we are a racing organization with only the Gordon Bennett Cup as our goal; and still others feel that we have banded together simply because that is the tendency of modern times. In reality, our purpose is very much more serious and stable. We admit that we enjoy the social side as we go along, that we would like to be instrumental in developing a car that would win the blue ribbon of the automobile turf, and that we are subject to the laws and influence of modern life; but we are bound together by a cohesive force greater than the minor objects named above, and I want to impress the point that these objects are on the lighter side, and are minor. Our real purpose is the development of the automobile as a reliable method of transportation for all the world, and not simply for the rich. On the contrary, it is our hope and belief that the automobile will ultimately be made so cheap, reliable and useful that it will be a necessity and not a luxury. It is not too much to say that this tendency is now in full swing, and should soon be visible, even to the casual observer.

Along with a reliable and low-priced automobile must come improvements in our roads; and this is one of our main objects, for which we are continually working and striving. Strange to say, while many city people are antagonistic to the automobile, the farmer is rapidly appreciating it, and beginning to estimate it at its true value.

I, therefore, lay stress upon the fact that while the high-powered touring car and limousine city car fill a great need, and are taking, and will maintain, a prominent place in the national life, it is really in the runabout and the business vehicle that the great future of the trade is to be found.

To my mind this year is the one which has the brightest outlook thus far for the American-made machine. Our manufacturers have learned many valuable lessons in the last three years, and they have profited by them. I believe that the sales will be larger, and I feel that the customer will be more satisfied than ever before, and further, that the records of American machines will be the best in every way during the coming year.

DAVE H. MORRIS,
President Automobile Club of America.
New York.

Condemns Lawlessness.

Editor THE AUTOMOBILE:—

The year 1905 may be counted upon to show a very marked advance in the use of automobiles. As the cost of construction is lessened and the liability to mishap decreases, they are becoming available to a larger number of people, and they are no longer to be looked upon as a luxury to be enjoyed only by the wealthy. During the last year they were much used by people of moderate means, and a great extension of that use is to be expected this year. The manufacturers are enlarging their lines, and machines that are well built, though of no great power and speed and perhaps lacking in some points of finish, are being put upon the market at a considerable reduction over the prices that have heretofore prevailed; this is a practical improvement that cannot fail to result in great advantage to the public in general.

On the other hand, the coming year will see far more high priced and strictly high grade machines than have ever been turned out before. We are coming closer to the highest grade of foreign manufacture than ever before, and it may almost be said that some of the cars that are being turned out for the season of 1905 are peers of anything that has come from abroad. They are almost matchless in their perfection of finish and in their running qualities, and as for power, we have some time ago reached capacities in that line that it is not necessary to surpass for any practicable purposes.

Further use will be made of auto cars for business purposes. The great advantage of reducing the number of horses upon our crowded city streets, not only because of the added room it will give, but for sanitary reasons, is becoming more and more apparent. While these considerations and numerous others that might be mentioned, particularly the saving of the great wear and tear on the streets, for which our heavy trucks are now responsible, do not appeal so directly to the individual who is looking out solely for his own pocket book and his own direct interests, there is a rapidly growing number of public spirited men who are working for the public good. A lack of public spirit is one of the reasons why this development of the automobile for business purposes is slow, but the development is nevertheless a sure one.

Automobiling is cursed by an amount of recklessness and disregard for law that now attracts as much attention and condemnation from the users of automobiles themselves as from the public in general. The criticism of the public, fierce as it has been at times, and misdirected as to persons, is nevertheless very properly directed toward a state of facts that calls for our earnest condemnation. The Chicago Automobile Club has investigated numerous cases of recklessness, which have been reported to it, and has called up several of its own members for reprimand. The club believes it is its duty to root out every bit of lawlessness which may be found in its ranks. It is this lawlessness which is responsible for most of the unwise legislation now prevailing.

It will be a tolerably slow process to correct this legislation, for everyone realizes that there must of necessity be laws upon our statute books and municipal codes which will provide for the safe operation of vehicles of every kind, whatever their motive power may be. The cardinal fault of most of this legislation now is that it is directed solely against one class of these vehicles, namely, automobiles, and harsh and unwarrantable restrictions and petty annoyances are imposed. So long as laws are adopted which make invidious distinctions and impose upon the users of automobiles burdens which there is no attempt to impose upon vehicles drawn by animal power, there is bound to be dissatisfaction and more or less hostility.

It behooves those who have the success of automobiling at heart to exert themselves during the coming year on the side of law and order, and the suppression of the recklessness and lawlessness that fortunately is already on the wane.

JOHN FARSON,
Pres. Chicago Automobile Club.
Chicago.

Opinion of a Veteran.

Editor THE AUTOMOBILE:—

The automobile business, considered from both the manufacturing and mercantile sides, is full of perplexities and difficulties. In the first place, it requires a large capital to enable a concern to get well started because for a year or so there will be little or no profit. The cost of getting plant, with all its machinery and equipment, in condi-

tion to manufacture in quantity and at a profit is more than in any other industry with which I am familiar. The mercantile end requires time and patience in order to get the selling force in line with the policy adopted and ready for aggressive work. We all remember the wonderful struggle which preceded and laid the foundation for the present success of one of the largest electric manufacturing companies in this country. That period of organization and slow progress was a means necessary to the end.

I believe that those who went into the automobile business with a determination to produce goods of value and have persisted in carrying out their ideas along strictly business lines, have already begun to feel the beneficial results and will, in the end, reap a well-earned profit. The American public is far more wise to-day than it was a year or so ago on the subject of gasoline touring cars, and it is my opinion that there will be a strong demand and ready sale for such cars as have won a good reputation and are known to be manufactured by concerns of high standing.

The various models to be exhibited at the New York Show in January will be a surprise to those who have not carefully followed the recent developments. On more than one occasion I have expressed myself as firmly of the opinion that this coming automobile show will be an eye-opener to the foreign makers, who have no adequate conception of the wonderful progress made by the American builders during the past twelve or eighteen months. It is true that we have adopted what seems best in the construction of the reputable foreign cars, but we have also made great improvements as a result of our own practical experience in the use of automobiles on American highways; so that to-day, cost and other essentials taken into due consideration, we are producing models which may well cause the foreigners to look to their laurels.

The most vital element in the touring car is the engine, and on its development the best technical skill has been centered to the end that the desired efficiency might be attained without sacrificing either strength or durability. One could ask for no better proof of success in this direction than the wonderful performance of our regular stock car in the Vanderbilt Cup race on Long Island. I may be excused this reference to the record of a car produced by the company I represent because it so fully illustrates the perfection in engine construction. The car ran mile after mile with almost unvarying speed, which showed even to the layman the wonderfully smooth workings of all mechanical parts. Without going too much into detail, let me say that we have solved the problem of minimizing friction in all working parts; done away with the noise which was so objectionable a feature in earlier models, and succeeded in bringing all parts of the car to so high a standard that our exhibits in the recent Paris Show have caused foreign makers to frankly acknowledge the American manufacturers as dangerous competitors.

The comfort and luxuries of automobile touring have also had so much thought and skill lavished on them that the cars of 1905 outclass in design and equipment all models yet produced, and compare favorably in all essential qualities with the best makes of foreigners. This means a growing export business.

ALBERT A. POPE.

New York.

Double Cylinder Not to be Superseded.

Editor THE AUTOMOBILE:—

It requires no argument to convince any one that I have the utmost faith, not only in the present condition of the automobile industry, but also in its future. The outlook for 1905 is especially gratifying, and the writer feels sure that it will prove to be the most profitable year the business has enjoyed up to the present time. The automobile has taken a firm hold on the public, and a large number who have never owned machines will undoubtedly purchase in 1905. Not only have the endurance runs and other public exhibitions demonstrated to the people that the automobile is a thoroughly practical machine for American roads, but the same object-lesson is taught by its regular use in all parts of the country, and its reliability, convenience and speed are now generally recognized.

I do not believe that the double-cylinder motor will be superseded by the four-cylinder, the chief reason for employing the four-cylinder machine is to obtain greater power without making the cylinders unduly large. We will build both types of machines for the coming year, the two-cylinder will be equipped with a double-opposed motor placed crosswise under the bonnet with a shaft drive direct on high gear. Our large car will be equipped with a four-cylinder, vertical motor, of about 35 h. p.

HAYNES-APPERSON COMPANY,
Elwood Haynes.

Kokomo, Ind.

A Sane and Satisfactory Era.

Editor THE AUTOMOBILE:—

The history of this company dates back to pioneer days, and yet, at no time in the existence of this organization has the outlook been so particularly encouraging. Not only is there genuine enthusiasm among the dealers and individuals with whom we are having relations, but, as well, this enthusiasm has a significance which must not be overlooked. This significance is the result of an educational process, through which automobile buyers have now passed. They have reached a point where they are able to discriminate intelligently between the good and the indifferent or the bad. They know what an automobile should be, and the reasons why it should so be. Consequently, present day enthusiasm does not indicate the presence of an automobile craze; but, rather, it is evidence of the fact that we are entering upon a sane and satisfactory era, during which the purchaser will get what he wants, at a reasonable price.

WINTON MOTOR CARRIAGE CO.
Chas. B. Shanks.

Cleveland.

The Ideal of an Optimist.

Editor THE AUTOMOBILE:—

I think it is evident to even the most casual observer that the automobile business is here to stay, and that it has passed through all the preliminary stages of development and has reached a position of strength and considerable prominence.

The development of motor cars to-day seems to be toward utility instead of towards excessive speed or other similar things which may be considered as fads. The idea now is to build cars for their every day usefulness as time savers just as much as for the pleasure they give their owners.

Progress from the earliest attempts to the car of to-day has been slow but sure. The idea of the first purchaser was to get something on wheels that would run by some power concealed within itself. In the early days of the industry, it seemed as though this was the sole idea of those who were buying. This was both bad and good for the business; bad because it permitted a number of unscrupulous manufacturers to place upon the market vehicles which were made to sell only, and which apparently were not intended to run; good because the experiences of purchasers with these failures added luster to the reputations of those who were building for the future. This condition did not last very long; as the experiences of people in different parts of the country became generally known, the public became more critical, and demanded of every car that it should run, though they were still perfectly willing to accept things which appear to us to-day as appalling creations.

The demand for reliability which followed is clearly marked by the number of reliability contests which are found everywhere on the calendar of that period. After reliability, the request came for durability, which was also shown in the numerous contests for endurance. To-day the call is for a car that will run with perfect uniformity all of the time, with comfort to its passengers, a minimum of expense to its owner, and with the least demand upon the driver.

In my estimation, the ideal car must be driven by a gasoline motor. I think this because two of the qualities of my ideal car are conceded by all to be better obtained by this system than by any other. I refer to the excellent economy of fuel obtained in the properly constructed gasoline motor, which reduces the cost of operation and at the same time makes possible a very great range of travel on one filling of supplies, greater than is obtained in any other system.

My ideal of a car considers only the most simple and direct methods of reaching the end desired, eliminating every unnecessary piece and avoiding all possibility of internal friction. The parts having any hard work to do must be designed of such ample proportions as to easily do that work, at the same time being so made that should wear occur, the replacement of a bushing or a similar piece will bring back that part to the same condition in which it was when new. The control of my ideal car must be so elastic as to produce any desired result within the capacity of the car without effort on the part of the driver.

The day when the driver of an automobile was looked upon with much the same awe as the engineer of a ponderous locomotive, when it was necessary for him to work almost as hard, has passed. While my ideal car must lend itself perfectly to the novice, I want to have it yield to the man of the "magic touch" such a range of life and action as will make its operation most fascinating, and will give such pleasure as cannot in any other way be equalled. It must do this without noise or fuss or jar, and withal it must be of pleasing proportions and finish.

I do not want to build all the motor cars that this country will buy. The demand is so varied that I am perfectly content to take a small portion of that demand and make a specialty of a single car to meet it. Everybody does not want the car we are building; some are not educated up to it, others may have graduated beyond it. The very wide range in the demand for cars leaves plenty of room in the business for all the different grades of motor cars that are offered. The man with one thousand or two thousand or four thousand dolllars to spend has the choice of a number of different propositions for his money. He can buy a car which will give him a great big show (on the outside), or he can put the same amount into something else which to the casual observer might not seem from outward appearance to be as good value, but the inside of which would probably be built like a watch, and capable of yielding far better results in the long run. Different makers offer differ-

ent goods between these two points, but as Ruskin said—"All works of quality must bear a price in proportion to the skill, time, expense and risk attending their invention and manufacture." No one ever made money trading dollars, nor will any one selling a car below its value.

Every car on the market at the present time has some clearly defined position in the minds of every other member of the trade, quite regardless of its dimensions or price. I can readily see how bewildering the array of illustrations, descriptions and prices of all of these cars must be to the man who is endeavoring to decide upon his first machine,and who has had no experience to help him. Horse-power and dollars are not the infallible guides to the value of what they represent, though they are very important factors. If I were asked to advise any one about the purchase of a car, I would suggest, first, the determination of the amount to be spent, then the type of car wanted, and next I would suggest securing the catalogues of as many manufacturers as offer that type of car at that particular price. I would in every case urge the prospective purchaser to make it a point to obtain the opinions of at least five users in his neighborhood of each car under consideration. I do not know of any other way in which the intending purchaser will so quickly get at the "meat in the cocoanut" regarding any particular car as if he will "ask the man who owns one."

The automobile is good for the health of those who use it; it is good for the economy of time which it makes possible; it does great good for the country by employing thousands upon thousands in its manufacture. The automobile is good for the country at large, and therefore I think the country should help the industry as much as it can by the passage of good laws, and by the building of good roads for the benefits which the increased use of automobiles will bring.

PACKARD MOTOR CAR CO.
Henry B. Joy, General Manager.

Detroit.

Foreign Cars for a Few Years.

Editor THE AUTOMOBILE:—

As to the automobile industry at the present time, and the outlook for 1905, I may say that I have never in the past, at this season of the year, considered the outlook generally so favorable for high-grade automobiles; purchasers are so completely informed on the subject, both mechanically and otherwise, as to at once appreciate vital points and important improvements in up-to-date makes; having learned by experience of the inconvenient, even if necessary, delays by the foremost manufacturers in delivering their new models, they are forestalling the same by getting their orders on file early, which is of great benefit not only to the purchaser but to the importer and the manufacturer; the importers and manufacturers of standing to-day are unquestionably in better position than ever before to give that quality in both labor and material that the purchaser has a right to expect in a well developed industry.

The American manufacturers to-day consider it as necessary as bread and butter to know exactly what is going on abroad in latest developments; the same feeling is now prevailing to a large extent abroad, with the net result which cannot be anything but advantageous to the American product; especially those who have made their principal study along the lines of foreign manufacture, which undoubtedly have both the advantage of time, experiment and experience. It must necessarily be admitted, too, that the foreign machines, with possibly some exceptions, will maintain at least for a few years more their lead by having started and built up their industry on the right lines some six or eight years ahead of the arrangement of correct principles in America.

As I do not deem it your idea to go into this subject in the minutest detail that it deserves, but more that you wish the observations gathered from my experience in the past and up to the present time in order to express my personal opinion as to the outlook of 1905, I cannot say but that I shall expect to see one of the best and most progressive years of this new but formidable industry.

SMITH & MABLEY, Inc.,
C. R. Mabley.

New York.

Technical Experience.

Editor THE AUTOMOBILE:—

I have been an enthusiast for the motor vehicle since I bought my earliest one in the spring of 1900. The only type which commended itself at that time was a steam machine, since the foreign importations were too costly intrinsically, and for their quality; and the American internal combustion motors of that day were too noisy, shook the car too much, and we had yet to learn how to build both the vehicle and the motor and to combine them. I have seen the pendulum swing away from steam and start back again towards it. I have seen the quality of the product steadily improve with experience in building and with the study of the failures, under working conditions. I have seen the machine grow in mechanical construction, and in the adequate proportion of material to the stresses it must stand up against. I have seen the steady increase in weight and in consequent price. I have seen the equally steady decrease in the number of stalled machines in one's driving, and in the number of machines receiving road repairs as I passed by in mine.

In those first years builders and buyers were properly self-distrustful. The buyer did not want to risk a large sum on an experiment of whose value he could not be sure; the builder had to make the motor which he could sell. But as the buyer and user broadened his experience he has been continually willing to buy more strongly built cars, with a longer operating radius, and to pay the price for them. The American has also been willing to see that the continental builder was no mere amateur, but knew his business thoroughly, and the car on this side of the water has plainly shown the effects of this study during these latter years.

The willingness of the buyer to follow has stimulated the builder to lead. The first machines were pleasure vehicles only, and in bad weather the horse vehicle was still to be depended on. The enclosed car for all weathers is a feature of the current year, and represents a permanent type, whose changes will be of detail and not of basal principle in the near future. This fixation of type removes at once the instability and feverish activity in a trade where part of its demand is from restless wealth who will only be contented with the latest or "up-to-date" car. Stability and permanence come in when the trade is supported by the larger group of persons who, when buying, are in search of a tool or a thing to use, and not a mere toy. The first group of buyers is a small one, and with the coming of a new fad may stop buying. The second group is larger by far, and is not subject to whims of fashion; it is to be the mainstay of the motor car industry, in my opinion.

This brings me to my other point, that the future of the motor vehicle industry will be assured when it has attached to itself the commercial activities of the country, and not alone the adherence of the leisure class who ride for pleasure. When the faddist has worked out his pleasure car, he may or may not replace it; when the motor car is used in business it *must* be replaced by another. This demand of necessity is that which the builders must create, if the business is to grow to proportions which I forsee. The business wagon must be so far superior to the horse vehicle in first cost when combined with running cost for the year, including repairs and maintenance, that any sane or open-eyed business man need only be informed on the facts to reach his decision to buy and operate. Every advantage attaches to the motor truck, provided only its noise, its weight, its repairs and its operating expense for running and maintenance can be brought down to the point where the vehicle becomes a conservative and permanent proposition. Then the builders will not be able to supply even a part of the demand. With kind regards.

F. R. HUTTON,
Prof. Mechanical Engineering, Columbia University.

New York.

Good Roads the Only Limit.

Editor THE AUTOMOBILE:—

Watching the automobile business, not only in this country, but in every civilized country in the world, it comes to me more and more that the field of automobile sales and usefulness is wider than we have any thought of at the present time. In our own country, the West is a market which is only partially developed, and the rural districts of the various states are rapidly coming to the front; many farmers now drive to town per motor car rather than in the old-fashioned way. The automobile is bringing the country closer to the city, and, in connection with rural mail delivery and rural telephone systems, life on a farm today is as comfortable as that in the city.

In my experience I have come to the conclusion that, owing to the universal prosperity throughout America, the only limits to automobile demand are the roads in any particular section. Where good roads abound, there is a large demand; and the moral of all this is plain to the automobile manufacturer. Let us have better roads, and our business will increase with even more rapid strides than it has in the past. Let the Brownlow Bill be passed and better roads will be had in every state and territory, and there will be more comfort for the automobile driver and an enormous increase in the number of machines sold in the United States. As a factor in the future of our industry, good roads must not be neglected, and the manufacturers should work hand in hand for the improvement of cars, the cheapening of the cost of construction and the improvement of roads.

For next season we shall manufacture one hundred per cent. more Oldsmobiles than in any previous year. This expresses our confidence that the coming season is going to be the greatest one we have ever known.

OLDS MOTOR WORKS.
R. D. Chapin, Sales Manager.

Detroit.

Unlike the Bicycle Industry.

Editor THE AUTOMOBILE:—

Speaking for the Electric Vehicle Company, the outlook for 1905 business could hardly be better. We have our production well under way, shall be able to make prompt deliveries and can see a satisfactory outlet for all the vehicles, gasoline and

electric, we can build during the next twelve months.

Speaking for the industry at large, I think that 1905 will be a very prosperous year. The buying public has become much more discriminating and will only buy cars of high grade material and workmanship put on the market by manufacturers of established reputation. Orders are being placed with these manufacturers several months in advance of deliveries. There seems to be a decided process of elimination by the intelligent buyer of cars made outside this class.

It has been predicted that the automobile industry will eventually pass through the same kind of crisis that attended getting bicycle making "down to a basis." All such prophecies seem absurd. The two cases are entirely different. The field of the bicycle is closely limited while that of the automobile in its various forms is so broad that its boundaries are beyond present calculation. No doubt in future years the automobile business will have the recurring seasons of prosperity and adversity which affect all other branches of industry. We may expect more or less misdirected production, the investment of unnecessary capital in wrong lines and much overdoing of the matter in one direction or another with attendant troubles; but one can look five years ahead with apparent assurance of general prosperity. During this period there will undoubtedly be flash-in-the-pan operations, soon to be forgotten, and mushroom growths that will spring up and disappear; but these should have very small effect upon the success of the industry as a whole.

As to the future of automobile sport, this space will only permit the suggestion that the opportunities for satisfactory racing are very limited now and probably will become more so as time passes. The oval track is unsafe, the highway is not the proper place and we cannot all go to the Florida beaches.

ELECTRIC VEHICLE CO.
M. J. Budlong, Pres.

Hartford.

A Single-Cylinder Optimist.

Editor THE AUTOMOBILE:—

To us the outlook for 1905 has some good as well as some bad features; the good consisting mainly of the facts that the people are more experienced and able to run their cars, and also that they are willing to go from fifteen to twenty-five hundred dollars on the purchase price. If we give attention to the bad features do not consider this a "calamity howl."

Many manufacturers contend that prices are going up, but, while the prices asked are greater, when compared with former cars, they are in reality putting out a much cheaper product than that previously manufactured. The present tendency on the part of the public to insist on multiple-cylinder machines would be amusing were it not fraught with such serious consequences to both buyer and seller.

The manufacturer, after deciding to fill the general cry for multiple-cylinder cars, must have a line of talk to correspond, and of course must drop his previous arguments. Thus, one after another of the champions of our old friend, the single-cylinder, have been forced to fill the popular demand.

Another condition has arisen for which we ourselves are wholly to blame. I mean the folly of naming a set time for the entire trade to drop their models and begin crying new wares. The agent's business has almost been ruined by this suicidal policy. This constant cry for new models, regardless of the serviceability of present cars, has led many concerns to drop meritorious features.

A simple and reliable machine, which will make thirty miles an hour over good roads, and can negotiate all grades, is what the public will call for in the near future; but from the present outlook, anything having a side-door entrance and four engines in front will go (or more correctly speaking, will *sell*). The fact of the matter is, the average operator takes very poor care of a one-cylinder machine, and the larger cars suffer correspondingly. I, like many other manufacturers, realize that it is easier to build what the people want than to convince them of the merits of what our experience has shown will give the best satisfaction. We, as manufacturers, however, should endeavor to put out the very best quality, regardless of public opinion as to price.

The business feature alone of the automobile industry is what will bring the public to a realization of the excellent results to be derived from an up-to-date, single-cylinder car. When a hard-headed but successful merchant reorganizes his delivery service, two things alone will influence him; steady service and the least cost per mile. These will be the features which will determine the basis upon which the future standing of the automobile will rest.

Let us hope that for the manufacturers' good, as well as the good of the public, business will soon become settled, and that the future cry will be for—Less Trouble and Longer Service, instead of New Models Every Season.

ST. LOUIS MOTOR CARRIAGE CO.
Jesse French, Jr.

St. Louis.

Skepticism Giving Way.

Editor THE AUTOMOBILE:—

As we focus the lens, the prospects are more promising than ever before. The feeling of skepticism as to the permanency of the automobile is fast giving away. Practical every day demonstration of comfort, pleasure and convenience has proven convincing. Hope is not the basis of our conjecture, but the great volumes of inquiry show the trend of thought toward purchase, and, barring some unforseen calamity, we believe that automobiles of reputation and worth will find a wonderful market for the season of 1905.

BAKER MOTOR VEHICLE CO.,
M. L. Goss.

Cleveland.

Racing Freaks Not Required.

Editor THE AUTOMOBILE:—

Our view of the automobile business, as reflected from our correspondence and daily contact with buyers, is quite optimistic. Our correspondence indicates that there will be a much larger number of buyers during the coming season than ever before; we believe, also, that these buyers are more discriminating than heretofore.

The demand for high power is quite pronounced, so that the multiple-cylinder motors will be in large demand. Many users have learned, however, the difference between high speed and great capability; and are demanding power for mud and hills instead of racing speed on the level. This demand will undoubtedly grow, and should be encouraged by manufacturers and publishers as much as possible. Satisfaction in daily service is of more importance than speed records, and this fact should always be kept in mind. If the press in the publication of contest reports would bring out the performances of moderate-priced stock vehicles such as are bought by the thousand, instead of devoting their entire attention to the utterly useless speeds made by the racing freaks owned by the few, the business would be greatly benefited.

An increased number of inquiries for business vehicles is a thing of promise; for the future of the industry must depend upon its utility rather than upon its appeal to the sporting element. It is our belief also that more attention is being given to reliability and a low maintenance cost and less to the first cost than heretofore. This is a most hopeful sign, for it permits manufacturers to build vehicles for use instead of for sale. We have also noticed a decidedly increased demand for greater passenger capacity, evidently due to the fact that whereas with a horse a man only carried his family, with the automobile he counts on carrying his neighbors; a thing that promises an increased number of converts to the automobile and much future business. More inquiries are received than formerly, for large wheels, high clearance and similar details of construction suited for bad roads, and magneto ignition has certainly gained friends during the year.

DURYEA POWER CO.,
C. F. Duryea.

Reading, Pa.

Foreign Machines a Matter of History.

Editor THE AUTOMOBILE:—

There is undoubtedly an increasing demand for motor vehicles of all kinds, but notably for the high grade machine of American manufacture. The "superiority of foreign machines" represents a condition of affairs no longer of interest to any but the historian, and those who indulge in reminiscences. It is safe to predict that he who still entertains doubts on this subject will find among numerous exhibits at the coming Automobile Show, and during the season of 1905, sufficiently convincing proof of my statement. In previous years, many American designers have stood in their own light by persisting, partly for the sake of pretended originality, and partly because of inexperience, in ideas which were mechanically bad, and which for the most part had been tested and discarded by our foreign contemporaries. Experience, however, and increased facilities for observation, have opened the eyes of many; with the result that our most successful machines now embody the same general structural features.

The elements which at present largely determine the successful operation of a machine are the quality of materials and workmanship, together with proper designing of parts with regard to strength, wear and accessibility. To the average owner of an automobile, durability is a very important factor, contributing largely as it does to lessened cost of maintenance; yet I doubt if many, aside from the chauffeur, realize to what extent accessibility of working parts tends toward the same end. Ignorance of the possibilities is largely responsible for this passive submission to hitherto existing conditions on the part of purchasers, but I venture to say that in the near future the majority will become severely critical and exacting concerning this particular feature.

In many machines numerous working parts cannot be reached except by removing, and possibly disturbing, the adjustment of other important parts. For example, in some cars the simple operation of renewing the clutch leather necessitates the complete removal of the gear-case, and in some instances the body as well. The connecting rod and crank shaft bearings cannot be adjusted without almost entirely dismembering the motor. Commutators are frequently placed where it is difficult to clean or lubricate them, with the inevitable result that they soon become unreliable. Other conditions similar to the above might be

cited, and invariably those parts which are difficult of access are neglected, causing decreased efficiency, and at times their complete destruction. Accessiblity, therefore, lessens the cost of maintenance in two ways:—first, in the saving of time for inspection or replacement; and, second, in reducing liability to derangement.

As to quality of materials entering into the mechanism, it is now possible to meet the most exacting requirements, even as regards castings, which have long been the bugbear of manufacturers in this country. The proper selection of materials is necessarily the result of long experience in this particular line of work, owing to the fact that the conditions are vastly different from those encountered in other branches of engineering. A comprehensive knowledge of proper working, fits, clearances, etc., can be obtained only in the same manner.

There is a manifest tendency among some manufacturers at present toward high-powered motors, that is, from 30 h. p. up; among others toward excessively light weight throughout the entire machine. Existing speed laws render excessive power practically useless for touring cars, and the condition of our American highways will soon bring about the destruction of the light-weight machine. The experience of those who have manufactured or owned bicycles should serve as a warning. The 20 to 30 horsepower car, weighing approximately 85 pounds per horsepower, properly designed and constructed should embody all the requisite qualities of a satisfactory pleasure vehicle; sufficient power for hill work, more than enough speed for good level roads, and ample strength for efficient service under the most severe conditions.

GAS ENGINE & POWER CO. AND
CHARLES L. SEABURY & CO.,
B. D. Gray, Mgr. Automobile Dept.
Morris Heights, N. Y.

A Healthy Condition.

Editor THE AUTOMOBILE:—

We believe the industry to be in a healthy condition—better than we have ever known it—and that the prospects for an excellent season in 1905 have so far exceeded our most agreeable expectations. This is due in part to the orders which we have on hand, a larger number than ever before at this season of the year.

THE LOCOMOBILE CO. OF AMERICA.
Bridgeport, Conn.

A Well-Known Voice.

Editor THE AUTOMOBILE:—

All the horizon is luminous with light to usher in the new day of the automobile. The horse will soon fall from his throne like a dead king, "for behold the old things have passed away and all things have become new."

Through your columns permit me to send greetings, congratulations and good wishes to that constantly growing army of automobilists, who are a new economic force, to be reckoned with in the affairs of men.

To-day an army of half a hundred thousand men and women are driving through city street and country lane, the very gods of the ancients. These gods may whine and groan and growl or purr peacefully (for gods have the idiosyncrasies of men), but it will avail them not. They are harnessed fast to our chariots and they will be the obedient servants of men to the remotest generations of time.

I love the subject so, that when I come to talk upon it my imagination takes eagle wings and soars into realms that I dare not picture, lest I be accused of "wheels" in the head. But pleasantries aside, the modern motor car is one of the mightiest facts of our time.

The burdens it will lift from the shoulders of humanity have not yet been catalogued. God bless and give a crown of immortality to the men who in the beginning strove and achieved.

WINTHROP E. SCARRITT.
New York.

Other Side of the Story.

Editor THE AUTOMOBILE:—

My personal opinion is that there will be about eight or ten times as many machines made next year as will be sold. There are too many manufacturers preparing to turn automobiles out by the thousand with unskilled labor, in such large lots of the "hand me down type," the same as a $10.00 suit of clothes is made.

Regarding the four-cylinder cars, there will be a lot of these cars on the market this year by new concerns who have never built a four-cylinder car before, and who are prepared to turn out hundreds of them without the least experience on a car of this kind. You know the inevitable result.

APPERSON BROS. AUTOMOBILE CO.
Elmer Apperson.
Kokomo, Ind.

Commercial Vehicle Requirements.

Editor THE AUTOMOBILE:—

In our opinion no one who gives any attention to automobiles, or the success that has been achieved in their manufacture, can doubt for a moment that the demand will increase and the improvement continue.

The field for commercial vehicles has not increased as rapidly as pleasure vehicles, not for want of a demand, but because the heavy truck now built has not been able to carry the bulk as well as the weight. Trucks are required, not so much to carry pig-iron as merchandise, and merchandise is bulky.

An automobile, in order to be profitable as a commercial truck, must be able to carry more in one load than a team of horses can draw, and if it can carry at one load what two or three teams can draw, then there is no question but that it will prove itself commercially profitable. To do this a wagon must be so constructed that it can have a long wheel base and yet turn around within a reasonable radius. This has been fully accomplished and demonstrated by the four-wheel drive, which permits the wheel-base to be of any length desired, distributing the power to all four wheels, and permitting the steering of all four wheels. It reduces the starting torque to the minimum, prevents the possibility of overloading the motors on bad roads—in fact, overcomes all of the difficulties that have been experienced in building heavy trucks, with a two-wheel drive; and as soon as the public knows what this means the heavy trucking and transit passenger business will retire horses from this work.

COMMERCIAL MOTOR VEHICLE CO.
F. J. Evans, General Manager.
Detroit.

Twenty-eight Thousand Cars.

Editor THE AUTOMOBILE:—

As parts manufacturers, our opinion can only be given with the full realization that we are really on the outside. Such parts manufacturers, however, who make contracts for devices to be fitted to the entire output of their various customers are, of course, in a position to judge better than any one else as to the aggregate number of cars which will be made. As parts manufacturers, we estimate from bona-fide orders placed with us thus far for bearings that the output for 1905 will be very near to 28,000 cars. As to any special recommendations bearing on the situation, we still believe that if the national, local and trade shows were held in November or December, instead of January, it would be a boon all around. The reasons for this seem obvious to those who know what it is to run day and night the early months of the year to fill orders, not only for those who have decided on their requirements months before, but for those who wait until the big show to decide on their definite policy.

HYATT ROLLER BEARING CO.,
P. S. Steenstrup, Secretary.
Harrison, N. J.

One-Third More.

Editor THE AUTOMOBILE:—

The outlook in our estimation is far brighter for the season of 1905 than it has been in the past season. As a matter of fact, our agents have ordered fully one-third more Cadillac machines for next season's use than was ordered by them last year, and applications from new agents are pouring in every day from unoccupied territory. The foreign trade is far in excess of last year, and we are confident we will find ready sale for every automobile that it is possible for us to produce during the season of 1905. As far as we have been able to learn this same condition exists with other manufacturers, and success is certain for both agents and manufacturers for the coming season.

CADILLAC AUTOMOBILE CO.,
Wm. E. Metzger, Sales Mgr.
Detroit.

A Tire Man Talks.

Editor THE AUTOMOBILE:—

Our intimate connection with the automobile industry, due to the use of our tires, brings us so closely in touch with the actual facts in connection with its growth as to enable us to say that we have an opinion of no uncertain strength regarding the future of the industry. We believe it is one that is but in its infancy and the growth within the next five years will be astonishing even to those inclined to the most conservative opinions at the present date.

B. F. GOODRICH COMPANY.
H. E. Raymond, Manager Sales.
Akron, Ohio.

Not a Passing Fad.

Editor THE AUTOMOBILE:—

Having been in the bicycle business for a number of years, the question is frequently asked if I do not consider the widespread popularity of the automobile a passing fad. To this question I can reply that it is my firm conviction that the automobile will be ever popular. The automobile is not a mere mechanical toy, it does not call for unusual physical exertion, and the weak as well as the strong can enjoy it. A large class of our people are mechanical in their tastes and instincts and the handling of a piece of machinery appeals to them more strongly than the driving of a horse.

The automobile is not, however, solely dependent upon pleasure seekers for its continued popularity, as the opportunities for its commercial advancement have really not been touched as yet. Manufacturers who are building successful pleasure carriages are so busy that they have no time to devote to designing delivery wagons. As their output is increased to meet the demand, they will gradually perfect every de-

tail of motor construction, so that it will be an easy step into the commercial world. The mere hauling of a load will not be the limit of the motor; it will be designed to load and unload its own freight.

Mechanical perfection is being reached with rapid strides, and, in the meanwhile, the people are unconsciously educating themselves by persistent investigation, so that they will be thoroughly competent to assume the proper care of the machines they buy. The automobile will open up streets and highways, it will build better roads, it will bring the busy man to the country and the farmer to the city. There is no question but that the automobile is a strong factor in modern civilization, and that its manufacture will always remain one of the leading industries of our country.

NORTHERN MFG. CO.,
V. M. Gunderson,
Detroit. Sec. and Treas.

Twenty a Day for a New Old One.

Editor THE AUTOMOBILE:—

As for the outlook for business next year for the new Reo car, I can say that it is very flattering. It would not do for me to give out the number of automobiles we have ordered for next year's delivery; the public would be inclined to think that the order was stuffed in some way. As for deliveries, we have had our material contracted for over sixty days, so that we expect to be delivering Reo cars at the rate of twenty a day by February 1.

REO CAR CO.,
R. E. Olds, President.
Lansing, Mich.

The Ideal Touring Car.

Editor THE AUTOMOBILE:—

That the automobile has come to stay, and is going to supplant the horse in every condition and for every purpose, is an old saying, but, nevertheless, a true one, as it has been proved very forcefully to the writer in recent observation.

For instance: In Detroit there is maintained an Automobile Express Co., which in one year has effectually put the old horse parcel-deliveries out of business; the reasons are numerous, promptness of delivery, increased cleanliness in handling packages, reduction in barn maintenance and economy of keep are only a few of them.

It appears that for the wealthy the four-cylinder car will be in demand in 1905, but the claims of the four-cylinder type should be thoroughly investigated by those contemplating the purchase of cheap cars.

Many opinions have been advanced that the popular choice will be for light five-passenger touring cars, of two cylinders opposed for cars of 20 horsepower and under.

We have been in a race for high power. People will begin to think twice as to the true meaning of horsepower. A car weighing 1,600 or 1,700 pounds, seating five people and developing 16 to 20 horsepower in a two-cylinder opposed motor, is bound to be popular because of its simplicity, ease of control, almost perfect balance, and its few reciprocating parts; only one-half the parts, and, therefore, only one-half the complications of a four-cylinder car.

The ideal car must be so constructed that the average driver can care for it himself, that maintenance shall be reduced to the minimum.

Not every purchaser of a chean $2.000 or $2,500 four-cylinder car can afford an engineer for its care, as such expense is really enormous in proportion to the original cost of the car.

Accessibility of parts should also be given due importance in the consideration of the prospective purchaser. Few wearing parts, and, in fact, simplicity, is to be looked for. Therefore, it is the opinion of the writer that the present demand is for satisfactory road touring cars with speed up to 40 miles and 18 to 20 horsepower, seating five people, and at a reasonable price, ranging from $1,700 to $2,000.

THE REID MFG. CO.
Harmon J. Hunt.
Detroit.

Air Cooling Not a Fad.

Editor THE AUTOMOBILE:—

Naturally enough, the air-cooled motor for use in the automobile appeals to me, not altogether because of my connection with manufacturers of that type of machine, but because, with less labor, less weight and fewer points to watch, the same ultimate result is accomplished. It must be allowed by all fair-minded people that air cooling is not a whimsical fad, but a verified principle; and why should we, in this life of strenuous activity, tax our senses and muscles unnecessarily with work that can be avoided. The very idea of the motor car was prompted by a desire to save human effort, and the air-cooling principle is only a subsequent feature introduced to save more labor.

What will be accomplished in motor construction can only be speculated upon, but one thing is certain, unless the mad desire to drive recklessly and at breakneck speed on the public highways is schooled out of a certain portion of the automobilists of the country, the better class of society will become antagonistic to motoring, and the most instructive and exhilarating sport yet enjoyed by any people will suffer the burden of biased legislation.

For this schooling, we must look to the trade journals and publications in general, and through their efforts much may be accomplished. It also lies within the power of the manufacturers to gear their road cars at reasonable speeds, irrespective of the power developed; and if this rule is followed out by all of us, the life of the sport is insured.

MARION MOTOR CAR COMPANY.
D. J. Hayden, Sales Manager.
Indianapolis.

Demand for Medium-Priced Cars.

Editor THE AUTOMOBILE:—

In regard to the automobile business, we will say that we believe too little attention is being paid to the general public. Most of the automobiles that are being built are too high priced for the ordinary user. A good two-cylinder water-cooled automobile should be put up in good shape at a reasonable price.

Also, some attention should be paid to the commercial interest, which, we believe, is being sadly neglected. From the general outlook at the present time, the indications are for a greater business in automobiles for 1905 than during the last year. Our reason for this estimate is based upon the demand for electrical fittings which we supply, which, we believe, should be a reasonable indication of the coming year's business.

DOW PORTABLE ELECTRIC CO.
W. E. Dow, Treas.
Braintree, Mass.

Economy the Keynote.

Editor THE AUTOMOBILE:—

It is our opinion that the automobile is becoming a necessity with the public, as seems partly to be evidenced by the extent and continued increase of the industry. It will stay with us if use and continued service demonstrate that it is not merely a luxury; that it can compete with and outdo the horse in its varied employments. Therefore, it is our firm belief that the real test for its staying qualities is its use commercially, that is, serviceability in the commercial world; in general delivery and hauling service, local passenger transportation, and the like. Economy in operation is the keynote to this. And we believe that the goal towards which manufacturers must work is to produce an automobile that is exceedingly economical in cost of maintenance, for this will put it on the plane of practical utility to all, and a more ready and better disposed market will be the result.

The comparison in economy is sometimes made between the typewriter and the automobile. In the early days of the typewriter it was difficult to convince a man that it would be to his lasting advantage to make an outlay of $100.00 or more in a typewriter; yet the typewriter is now regarded as indispensable. And so it will have to be with the automobile.

Our own efforts in the trade are earnestly bent in the direction thus indicated.

SYNNESTVEDT MACHINE CO.
C. K. Hicks, Secretary.
Pittsburg.

Less Noise.

Editor THE AUTOMOBILE:—

The outlook for the automobile industry for the year of 1905 appears to us to be most excellent. The demand for well-built machines is increasing almost beyond belief, and, while nearly every factory has increased its capacity from 50 to 100 per cent, there seems to be very little doubt that any concern turning out a reliable car will have no difficulty whatever in disposing of its output.

The demand for our noiseless rawhide pinions for electric automobiles and for driving the pumps, cam-shafts, etc., of gasoline machines, is increasing rapidly, and they have been incorporated in the designs of a number of the leading cars for this season. We are also working on several large orders for metal transmission gears of both the sliding and planetary types and for bevel driving gears. We have during the past year erected a new plant and greatly increased our facilities; but, in spite of this, have orders in hand covering practically our entire output for the next three months, and are now arranging to put on a night force early in January.

THE NEW PROCESS RAW HIDE CO.
T. G. Meachem, Vice-President.
Syracuse, N. Y.

Increase—100 Per Cent.

Editor THE AUTOMOBILE:—

So far as we are able to learn, the automobile industry is prospering. We have been told that in other lines of trade there has been a marked dullness and falling off during the past season, as compared with the previous year, but the records of our own business show an increase of more than one hundred per cent. over that of the previous season; and we believe that this increase has been shared to a greater or less extent by most of the automobile concerns who are putting out a meritorious product, and this in the face of a general dullness affecting nearly every other industry.

From present indications we should say that the outlook for 1905 seems very much brighter than it did at this time last year for the season just closing; and if an ever-increasing and satisfactory business is any criterion on which to base an opinion of

its stability, we should say that the automobile industry is "it."

If we may venture to make a forecast as to what we believe to be impending in this industry, it is the general adoption of the flange-cooled, or commonly called "air-cooled," motor. The adaptability of this motor for automobile use has not been appreciated by manufacturers heretofore, but it is beginning to be better understood, and, with improvements in methods of lubrication, the want of which has been the chief difficulty in the way of its complete success, it will crowd the water-cooled motor to the rear, and do much to lighten the weight, cheapen the cost and increase the reliability of the automobile as a vehicle for pleasure and utility.

In this connection, if we may be permitted to make a suggestion with reference to the motive power question, we would say that there is at present a real danger that the industry will suffer harm from the overpowering of light vehicles. The tendency among manufacturers to do something extraordinary, on account of its supposed value as an advertisement, has led to the placing of motors of a size and power in some instances wholly out of proportion to the strength and weight of the running gear. That there is a limit to the amount of power which can be usefully employed on a given vehicle, and a certain interdependent ratio between power, weight and gear, which is better for that particular vehicle than any other ratio, goes without saying; and any increase in power beyond this is bound to be detrimental and unsatisfactory in service.

TORBENSEN GEAR, INCORPORATED.
Viggo V. Torbensen, President.
Bloomfield, N. J.

Maintain a High Standard.

Editor THE AUTOMOBILE:—

In our opinion, the interests of the automobile industry can be best served by maintaining a high standard of excellence in the production of automobiles and accessories.

It is a well-known economical fact that in a well-equipped manufacturing establishment, its product represents a given value in dollars and cents, which value represents material, labor and a fair interest on the capital invested. We cannot help noticing a trend, especially in accessory materials, toward sacrificing quality for the sake of so-called cheapness. In order to cheapen the price of an article, it is necessary to cheapen the articles integral therewith, as well as reduce the time of labor on each article.

It is well known that there is a certain limit where it is well to draw the line on this shaving off, unless the value of the article is materially affected. A deterioration in the value and efficiency of products, especially of products that must stand severe wear and tear and give positive results, inures in time to the disadvantage of the reputation of that especial manufacturer, and, in a certain measure, affects in an indirect manner the entire industry. Especially is this true of the automobile industry, which is yet in its incipient stages, and has not yet fully enlisted public sympathy. This can best be illustrated by seeing a man with an automobile or accessory having trouble with the same on a public thoroughfare, which leads the public to believe that all articles of this kind are deficient, and they think of holding off in their purchasing of these articles until some future date, when they expect a higher state of perfection.

We would, therefore, in our opinion, recommend that manufacturers maintain the highest possible standard of efficiency, even at the risk of a higher cost of production, as we think this will be more conducive to developing the industry than placing on the market articles in which low price is the only consideration.

ROSE MANUFACTURING CO.
Edwin M. Rosenblath, Gen. Mgr.
Philadelphia.

Revolution in Locomotion.

Editor THE AUTOMOBILE:—

As the writer sees it, from a carriage point of view, in which he has been engaged for many years, the automobile industry is not much short of a revolution in locomotion. The inventive energy and business capacity of those in command seems to assure that result, and place America in advance of older manufacturing nations.

So much has yet to be done to practically adapt, cheapen and improve the new means of transport that I can hardly enter on that subject now, but many are doing work that must bear good fruit in the near future.

JERSEY BRAKE CO.
Anson Searls, Pres.
Newark, N. J.

Commercial Vehicles to Lead.

Editor THE AUTOMOBILE:—

From a personal acquaintance with the automobile trade, the writer is inclined to believe that there will be a marked change in the automobile business with the next year, by reason of an increasing demand for commercial automobiles, rather than for pleasure vehicles. Owing to the fact that there are so many firms now building pleasure vehicles, and that still more are getting ready to build this same type of car, it would seem that a reduction in the price of the same should follow.

Generally speaking, we anticipate a better year's business than we had during 1904, and we think that the outlook throughout the trade is very bright.

DAYTON ELECTRICAL MFG. CO.
R. L. Hubler, Sec'y.
Dayton, Ohio.

Ostracize the Speed Faddists.

Editor THE AUTOMOBILE:—

We are fully convinced that the automobile is just beginning to get out of its infancy. As far as practicability is concerned, the automobile should be far easier to take care of than a horse, extremely well built, using only the very best of the different kinds of materials that go into its makeup. It should be extremely simple; the fewer parts there are, the less to get out of adjustment or need replacement. It should have a fifth more horsepower than its weight. Then it should have a steering arrangement that is positive, and one that cannot get out of adjustment. Its motor and transmission parts ought to be so constructed as to need taking up but once a year, and every part should be so designed as to be instantly accessible. Oiling should be automatic so that the filling of one reservoir takes care of every part needing oil. The ease and comfort of passengers should be looked after to a high degree; good comfortable backs and seats, together with plenty of foot room, lots of storage space and convenient pockets.

We are firmly convinced that the automobile has not only come to stay, but that its manufacture is one of the greatest industries of modern times. There is scarcely a business but what will be conducted with the use of these cars. We deeply deplore the attitude taken by many of our large manufacturers, who are building cars with only seating capacity, to go tearing over the roads at a pace equal to motors driven on rails instead of a rough highway, thereby endangering people's lives, causing obnoxious laws to be passed which restrict the innocent with the guilty. The sooner this part, which we believe to be a fad, dies out, the better. An automobile which will take its load up hill and down with sufficient power on the high gear at twenty miles an hour will be the ideal future car. One loses the comfort and pleasure of the ride beyond that speed; an actual twenty miles per hour is easily mistaken by the average public for thirty or forty, as well as figuring the per cent. of a grade. Most cars, especiallly in the runabout (or overgrown runabout) class have been built too much on the order of toys which last but one season. But we notice the public, and manufacturer as well, has discovered what we have claimed several years ago, that good cars to stand service could not be built and sold at the low prices figured on, consequently the prices have steadily advanced.

Another bad feature which we think the manufacturers and agents are partly responsible for, is the constant changing of styles and models, simply to suit the idea of some people who know nothing of what an automobile should be, thereby preventing the perfecting of the car and necessitating the making of new tools, jigs, etc., just as the manufacturer is getting his model in a state to build right, and at the same time make some money on. It is only on his making a profit that the business can succeed. It is a well-known fact that more money has been lost to date than made. A successful man in the automobile manufacturing line must be endowed with mechanical as well as business ability.

LOGAN CONSTRUCTION CO.
B. A. Gramm, Vice-Pres. and Gen. Mgr.
Chillicothe, O.

Not All Talk Now.

Editor THE AUTOMOBILE:—

Your request opens up a flood of thought which is both pessimistic and optimistic as to the future conditions of the automobile trade.

Originating with "Tire Talks," we made our entry in the New York Show three years ago to make a bid for the motor tire business; "Talks" being the best and about the only thing we had in stock at the time.

Our first exhibition was of tires a trifle larger than those used on carriages, and one or two motor tires of a moderate size. We finished the week amidst a great deal of excitement and with one large order for a set of 5-inch motor tires, for which we had no mould. The sale was accomplished through the desperate effort on the part of your humble servant to draw (during show week) what was supposed to look like the tire we expected to deliver. When it came to the question of price, we could almost say that we were possibly in the best position, as there was no opportunity for argument either way; we, not knowing what the tire should cost, and the purchaser not knowing what it would cost, "took our word for it." Upon our return to the factory, however, the order had materially decreased in size, and, considering the "initiation" expense, we began to think that motor tires and the automobile industry were comparatively like an extra fine dessert to an expensive dinner. But the "world do move," as the old darkey said, and so with the automobile industry.

Behold the growth! We have just subscribed for spaces in the 1905 shows, and are successfully turning out thousands of pounds of motor tires to-day, carrying automobiles weighing anywhere from 500 to

(*Continued on page* 94.)

Tires and Tire Accessories Exhibited at the Paris Automobile Salon.

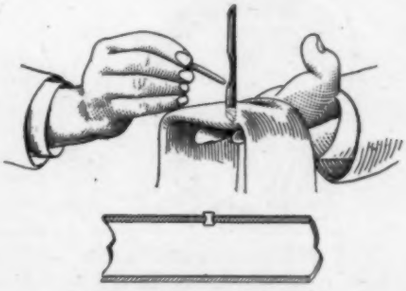
Especially Reported for THE AUTOMOBILE.

PARIS, Dec. 23.—Though the tire exhibit in the Automobile Salon is extensive, there is little that is new in the stands of the large makers. Evidently types have become standard, and the factories seem disposed to let well enough alone.

The Michelin space is surprisingly small, considering the position of this house in the trade, and it is filled for the most part with ordinary stock samples. A section of the new flat tread tire is the chief attraction, as this can now be bought in all sizes, for all kinds of service. This section has been used on racing machines exclusively during the past year, and is apparently considered to have passed beyond the experimental stage. Tire repairs are now commercially considered by this house, which in the past has contented itself with issuing instructions only. A new rubber substance styled "Mastic" is shown, for use in stopping punctures in the inner tubes. This is of a putty-like consistency, and is used to plug any small hole, a pocket knife answering for the purpose. When the tube is replaced and the run continued, the heat generated in the tire is expected to partially vulcanize the Mastic.

INNER TUBE REPAIR PLUG.

A mechanical repair outfit, in which a small plug of rubber is inserted through a hollow needle in an inner tube puncture, not exceeding 1-4 inch in diameter, is also



MICHELIN REPAIR OUTFIT.

shown. The method is easily understood by reference to the accompanying illustration.

A new size of tire is shown at the Continental stand. This is made in 135 mm. and 150 mm. diameters of tire, and has an ordinary section with plain tread.

"TORSAL" INNER TUBES.

The Dunlop shows a tire with an extra thickness of tread laid on, with transverse incisions to prevent skidding. An inner tube moulded without any joining whatever is exhibited by the Clincher (English) concern. The Gallus firm exhibits what is termed torsal inner tubes. Three to six inner tubes are plaited and enclosed in one outer cover, there being a separate valve for each chamber. The advantage claimed is that if one inner tube is punctured, the others can be pumped a little harder, and the car run with one tube empty.

ANTI-SKID AND ANTI-PUNCTURE DEVICES.

If the big tire makers have little that is new, the same cannot be said of the smaller and less well-known firms handling anti-skidding and anti-puncture appliances. Every kind of apparatus is shown, with a view to abolishing these two nuisances.

PINCON ARMORED COVER.

Note Teeth on Under Side of Rivet Heads, also Side Bolts Which Hold Outer Leather Band in Place on Permanent Leather Cover Vulcanized on Rubber Tire Shoe.

OPTIMA PERMANENT COVER.

Leather Cover Vulcanized Auto Tire. Band Covering Tread Composed of Chrome Leather with Steel Studs Riveted in. Crescent Shaped Leather Foundation Protects Rubber from Ends of Rivets.

SAMSON PERMANENT COVER.

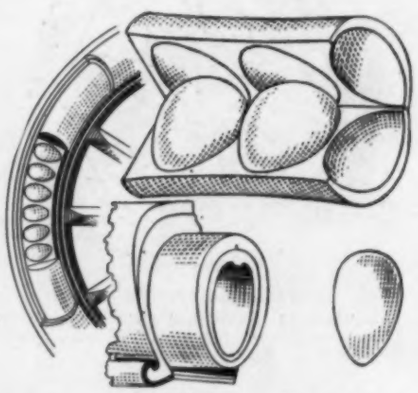
Original Anti-Skid Device of This Type. Rivets with Hardened Heads and Soft Bodies Studded in Leather Anti-Puncture Tread.

These may be broadly classed under different heads—those in which the tire proper is divided into chambers, those in which portecting bands are vulcanized to the tire, those which take the form of leather armored bands for attachment to wheels fitted with ordinary tires, and, lastly, those of metal construction, in which chains or steel plates are mechanically secured to the wheels. The greater number shown are of the vulcanized type, and next in point of numbers comes the removable leather cover. The all-metal devices are less numerous, and fewest of all are the special tire constructions.

INVICTUS PUNCTURE-PROOF TIRE.

Of the latter, the Invictus puncture-proof tire shown in the accompanying engraving is ingenious, the egg-shaped balls being hollow. A puncture in any one of these would probably develop a soft spot in the tire, and the resiliency of the tire cannot, of course, equal that of the ordinary pneumatic. It is quite expensive also.

Practically all the detachable leather and metal devices are open to the objection of increased weight and of irregular dirt accumulating surfaces. Those in which no method of spring compensation is employed will fit the tire properly only when the tire is fully inflated, and a leaky valve would almost surely cause a great amount of chafing when the diameter of tire and protector varied.



INVICTUS CHAMBERED TIRE.

Note Egg-Shaped Air Chambers Shown in Section and in Position on the Rim.

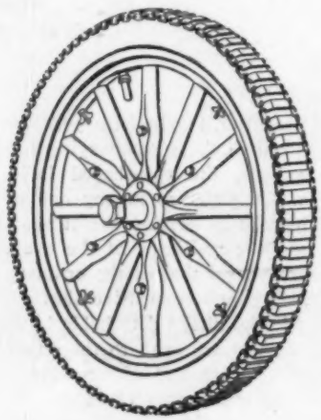
ARMORED LEATHER COVERS.

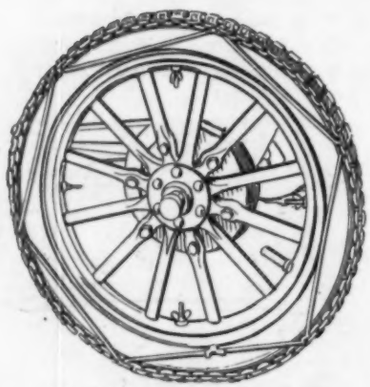
The leather cover armored with steel studs shown by Charles Rossel is attached by leather lugs passing between the spokes, hooks on one lug fastening into holes on the opposite lug, and the whole held by the inflation of the tire. The De Fornier band is similar in principle, but has a different attachment. A false rim, consisting of six sections, is fitted on the rim of the wheel, and has holes along its circumference to receive hooks from the lugs of the

band. The sections of the false rim are united by bolts which, when screwed up, hold the whole firmly in position.

The "Billet" band is fitted with an extensible wire which allows the cover to pass easily over the deflated tire from the outside. The ends of the extensible wire are then drawn together and secured by means of nuts, and when the tire is inflated the cover is held firmly in position. In addition, four straps are fitted, each of which is passed around a spoke and attached to a buckle on the opposite side of the cover.

The Watkins cover is attached to a spring frame bolted to and permanently fixed to the wheel.





LEMPEREUR METALLIC BAND.

Flexible Band of Cast Steel Links Fitting on the Tread When Tire Is Inflated and Held in Position by Hexagonal Side Ropes.

Desjardin Leather Envelope.

An all-leather envelope is shown by Desjardin. It consists of two beaded edge bands wrapping over one another and fastened together by steel studs, thus forming a tire. The joint is covered both inside and outside by a leather band. From the beaded edge is a rim of leather pierced with holes, which serves to lace down an exterior protecting steel studded band, this latter being perfectly secured by being laced to a leather rim on other side of tire. There are thus two thicknesses of studs, separated by an intermediary outer cover.

Flexible Steel Plate Cover.

The Lempereur band is all metal. It consists of a covering of oblong steel plates of suitable width for face of tire, united by steel links, there being just sufficient space between the plates to make the covering flexible. It is put on the tire by deflating a little, and is held in position entirely by the pressure of the inflated tire.

Steel Chain Armor Band.

The Neron company shows an anti-puncture band consisting of a steel chain bandage secured between two layers of rubber, of which it forms an integral part. This bandage is placed inside the outer cover. The meshes of the wire chain jacket are sufficiently flexible not to interfere with the suppleness of the tire, and yet sufficiently resisting to prevent any sharp object piercing them.

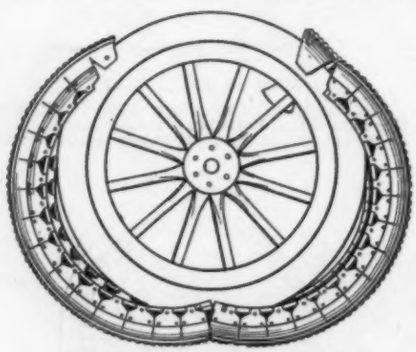
In the accompanying illustrations several of the exhibits are shown, and are self-explanatory. They include tires coming under the different heads already noted.

Special Detachable Rims.

Several firms have attempted to overcome the difficulties of putting on and taking off tires from ordinary rims. The Stier firm shows a wheel consisting of two steel rims with suitable flanges and a solid steel disc. The two rims are fixed one at each side of the steel disc and form the wheel. One of the rims is permanently fixed to the disc, the other can be readily taken off or put on, and is secured by six bolts. To take off the tire the nuts are unscrewed, the bolts drawn out and the outer rim taken off. The tire can then be withdrawn without difficulty. A cut is made in the disc to accommodate the tire valve. This can be used with any clincher tire.

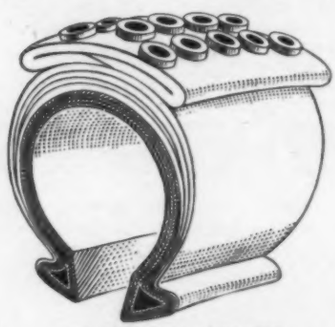
LE SARTIAUX PROTECTING BAND.

Armored Leather Band with Flaps Carrying Steel Hooks which Are Slipped under the Clinch of the Tire.



BEAUJON DETACHABLE COVER.

Held in Place by Hinged Circumferential Wire with Fastening Bolt to Take Up Stretching.

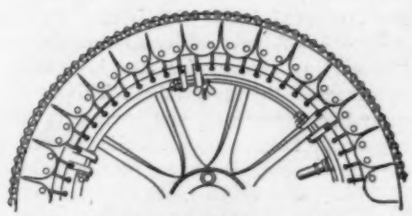


LE MARQUIS ANTI-SKID.

Leather Cover Vulcanized on Tire with Leather Folded Band on Tread Holding Soft Rivets with Hard Steel Washers to Prevent Wear. Ends of Rivets Are Between Folds of Leather Tread.

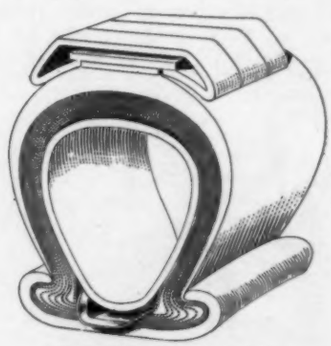
PARSONS CHAIN BAND.

All Metallic Protector. Detachable Steel Chains Secured to Flexible Jointed Ring.



DE FORNIER ARMORED BAND.

Detachable Leather Armored Cover Attached to Sectional Ring, Held Together by Bolts. When Bolts on One Side Are Withdrawn Tire Cover Can Be Pulled Off Sidewise.



CHAMEROY STEEL TREAD.

Flexible Segmental Steel Band Held in Position by Leather Band Vulcanized to Tire Tread.

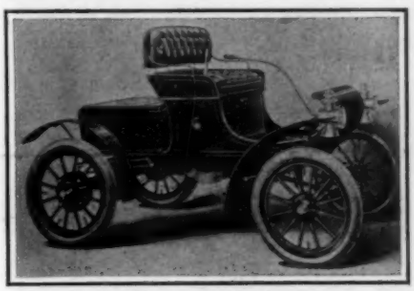
The rim shown by Louis Peter endeavors to offer the same advantage as the previous one, without changing the appearance of the car wheel. It consists of two parts; first, a fixed steel rim attached in the ordinary way to the wooden rim of the wheel, having on its outer edge a groove to receive the second part. This second part is a flexible steel band forming a broken circle, the ends being brought together or widened out by means of a bolt having a left and right thread. A flange on the loose rim fits into the groove on the fixed rim, and is held in position by means of the screw. The use of this rim necessitates the use of special section tires, which Peter also supplies.

CARS OFFERED FOR THE SEASON OF 1905.

Specifications and Illustrations of Automobiles to Be Seen at New York and Chicago National Shows, Arranged by Prices, Beginning with Cars from $500 to $950.

$500 Pope-Tribune.

Pope Mfg. Co., Eastern Dept., Hartford, Conn.; runabout, with standing rear deck; seats 2 persons; motor, single-cyl. vertical; horsepower, 6; drive, shaft with bevel gear; transmission, sliding gear; speeds, 2; ignition, jump spark; cooler, tubular, rotary pump; water capacity, 3 1-2 gals.; gasoline, 3 1-2 gals.; frame, angle steel; steering, wheel; brakes, engine flywheel and transmission; weight, 750 lbs.; wheel dia., 28 ins.; tires, 2 1-2 ins.; car sold equipped with full set of tools.



$650 Oldsmobile.

Olds Motor Works, Detroit, Mich.; runabout; seats 2 persons; motor, single-cyl. horizontal; horsepower, 7; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, copper disc radiator; water capacity, 5 gals.; gasoline, 5 gals.; frame, angle steel; steering, tiller; brakes, differential and rear hubs; weight, 1,100 lbs.; wheel-base, 66 ins.; wheel dia., 28 ins.; tires, 3 ins.; top extra, $25.

$650 Royal Electric.

Royal Automobile Co., Chicago, Ill.; electric runabout; seats 2 persons; drive, chain; speeds, 4; 1 motor, 3-4 horsepower; cells, 14; brakes, differential; weight, 600 lbs.; wheel-base, 60 ins.; wheel dia., 28 ins.; tires, 2 1-2 ins.; sold equipped with lamp, rubber cover, and repair outfit; top extra, $50.

$650 Holsman.

Holsman Automobile Co., Chicago, Ill.; runabout; seats 2 persons; motor, 2-cyl. horizontal; horsepower, 6; drive, direct, rope belt; ignition, jump spark and dry cell; air-cooled; gasoline capacity, 6 gals.; frame, tube and angle iron; steering, lever; brakes, tire; weight, 700 lbs.; wheel-base, 63 ins.; wheel dia., 44 and 48 ins.; tires, 1 1-8 solid rubber; car sold equipped with full set of tools and lamps; top extra, $25 to $50.

$650 Northern.

Northern Mfg. Co., Detroit, Mich.; runabout; seats 2 persons; motor, single-cyl.; horsepower, 6 1-2; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; water capacity, 3 1-2 gals.; gasoline, 7 1-2 gals.; frame, angle steel; steering, center lever; brakes, differential; weight, 1,100 lbs.; wheel-base, 71 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with 2 oil lamps, horn and tools; top extra, $50.

$650 Covert Chainless.

Covert Motor Vehicle Co., Lockport, N. Y.; runabout; seats 2 persons; motor, single-cyl. vertical; horsepower, 6 1-2; drive, propeller shaft; transmission, sliding gear; speeds, 2; ignition, jump spark; water-cooled head; water capacity, 3 gals.; gasoline, 5 gals.; frame, angle iron; steering, wheel; brakes, differential; weight, 750 lbs.; wheel-base, 72 ins.; wheel dia., 28 ins.; tires, 2 1-2 ins.; top extra, $25 to $40.

$600 Overland.

Standard Wheel Co., Terre Haute, Ind.; light runabout; seats 2 persons; motor, 2-cyl. vertical; horsepower, 6-7; drive, bevel gear; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; water capacity, 3 1-2 gals.; gasoline, 5 gals.; frame, armored wood; steering, center lever; brakes, differential and transmission; weight, 900 lbs.; wheel-base, 72 ins.; wheel dia., 28 ins.; tires, 2 1-2 ins., 3 ins., extra; car sold equipped with Dietz oil side lamps, fenders, tire pump, repair kit, horn, grease gun, dust apron, 1 qt. cylinder oil; canopy or cape top extra, $50.

$650 Cameron.

James Brown Machine Co., Pawtucket, R. I.; runabout; seats 2 persons; motor, 2-cyl. vertical; horsepower, 8-10; drive, shaft; transmission, sliding gear; speeds, 2; ignition, jump spark, air cooled; gasoline capacity, 6 gals.; frame, wood; steering, wheel; brakes, rear hubs; weight, 750 lbs.; wheel-base, 76 ins.; wheel dia., 28 ins.; tires, 2 1-2 ins.; car sold equipped with lamps, horn, tools, tire pump and repair kit; top extra, $50.

$650 Cameron.

James Brown Machine Co., Pawtucket, R. I.; runabout with detachable tonneau; seats 5 persons; motor, 2-cyl. vertical; horsepower, 8-10; drive, shaft; transmission, sliding gear; speeds, 2; ignition, jump spark, air-cooled; gasoline capacity, 6 gals.; frame, wood; steering, wheel; brakes, hubs; weight, 850 lbs.; wheel-base, 76 ins.; wheel dia., 28 ins.; tires, 2 1-2 ins.; car sold equipped with lamps, horn, tools, tire pump and repair kit; top extra, $75.

$750 Rambler.

Thomas B. Jeffery & Co., Kenosha, Wis.; runabout; seats 2 persons; motor, single-cyl. horizontal; horsepower, 7; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, thermo syphon; water capacity, 100 miles; gasoline, 100 miles; frame, angle steel; steering, nut and screw; brakes, transmission and rear hubs; weight, 1,300 lbs.; wheel-base, 81 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with 2 oil side lamps, horn, pump, tools, oilers and repair kit.

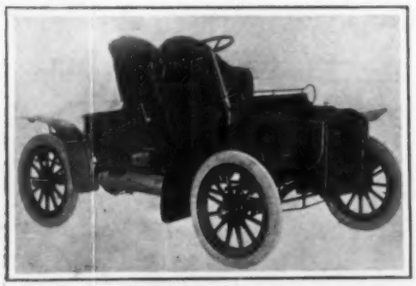
$700 Maxwell Tourabout.

Maxwell-Briscoe Motor Co., Tarrytown, N. Y.; single-seated light car; seats 2 persons; motor, 2-cyl. transverse; horsepower, 8-10; drive, shaft; transmission, planetary; speeds, 2; ignition, jump spark; cooler, thermo syphon; water capacity, 2 1-2 gals.; gasoline, 10 gals.; frame, armored oak;

steering, wheel; brakes, two; weight, 800 lbs.; wheel-base, 76 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with 2 oil lamps and horn; top extra, $50.

$750 Overland.

Standard Wheel Co., Terre Haute, Ind.; touring runabout; seats 2 persons; motor, 2-cyl. vertical; horsepower, 8-9; drive, bevel gear; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; water capacity, 3 1-2 gals.; gasoline, 10 gals.; frame rolled sheet steel; steering, wheel; brakes, transmission and rear axle; weight, 1,000 lbs.; wheel-base, 78 ins.; wheel dia., 28 ins.; tires, 2 1-2 ins., 3 ins. extra; car sold equipped with lamps, horn, fenders, dust apron, extra spark plugs, tool and repair kit; cape top extra, $40; canopy top extra, $75.



$750 Cadillac.

Cadillac Automobile Co., Detroit, Mich.; runabout; seats 2 persons; motor, single-cyl. horizontal; horsepower, 9-10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; steering, wheel; weight, 1,100 lbs.; wheel-base, 74 ins.; wheel dia., 28 ins.; tires, 3 ins.

$800 Cadillac.

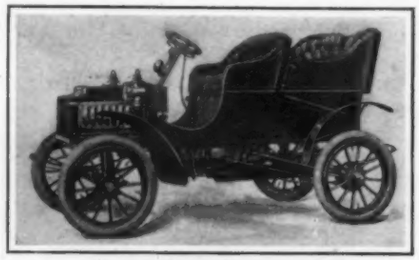
Cadillac Automobile Co., Detroit, Mich.; runabout with top; seats 2 persons; motor, single-cyl. horizontal; horsepower, 9-10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; steering, wheel; weight, 1,100 lbs.; wheel-base, 74 ins.; wheel dia., 28 ins.; tires, 3 ins.

$800 Prescott.

Prescott Auto Mfg. Co., New York City; steam runabout; seats from 1 to 4 persons; motor, 2-cylinder; horsepower, 7 1-2; drive, chain; water capacity, 32 gals.; gasoline, 9 1-2 gals.; frame, tubular steel; steering, side lever; brakes, rear hub; weight, 1,300 lbs.; wheel-base, 68 ins.; wheel dia., 28 ins.; tires, 3 ins.; top extra, $100.

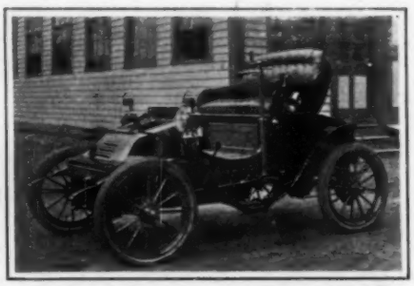
$850 Rambler Delivery Wagon.

Thomas B. Jeffery & Co., Kenosha, Wis.; commercial delivery wagon, convertible to runabout; seats, 2; motor, single-cyl. horizontal; horsepower, 7; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, thermo syphon; water capacity, 100 miles; gasoline, 100 miles; frame, angle steel; steering, nut and screw; brakes, transmission and rear hubs; weight, 1,400 lbs.; wheel-base, 81 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with 2 oil side lamps, horn, pump, tools, oilers and repair kit.



$850 Rambler.

Thomas B. Jeffery & Co., Kenosha, Wis.; light touring car, detachable tonneau; seats 4 persons; motor, single-cyl. horizontal; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, thermo syphon; water capacity, 100 miles; gasoline, 100 miles; frame, angle steel; steering, nut and screw; brakes, transmission and rear hubs; weight, 1,400 lbs.; wheel-base, 81 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with 2 oil side lamps, horn, pump, tools, oilers and repair kit.



$900 Autocar.

The Autocar Co., Ardmore, Pa.; runabout; motor, 2-cyl. horizontal; horsepower, 10-12; drive, shaft and gear; transmission, sliding gear; speeds, 4; ignition, jump spark; cooler, cellular and fan; water capacity, 3 gals.; gasoline, 9 gals.; frame, armored wood; steering, side lever; brakes, driving shaft and hub; weight, 1,200 lbs.; wheel-base, 70 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with 3 lamps, storm apron, tools and tire repair outfit.

$900 Columbia Electric.

Electric Vehicle Co., Hartford, Conn.; electric runabout; single motor, 1 1-2 horsepower; drive, chain; speeds, 3; frame, angle iron and wood; steering, side lever; brakes, rear hubs; weight, 1,360 lbs.; wheel-base, 64 ins.; wheel dia., 30 ins.; tires, 2 1-2 ins.

$750 Mitchell.

Mitchell Motor Car Co., Racine, Wis.; runabout; seats 2 persons; motor, 2-cyl. vertical, tandem; horsepower, 9; drive, single chain; transmission, sliding gear; speeds, 3; ignition, jump spark: cooler, radiator, gear pump, fan; water capacity, 3 gals.; gasoline, 5 gals.; frame, steel; steering, wheel; brakes, rear axle; weight, 1,100 lbs.; wheel-base, 76 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with side lamps and tools.

$750 Oldsmobile.

Olds Motor Works, Detroit, Mich.; runabout; seats 2 persons; motor, single-cyl. horizontal; horsepower, 7; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, honeycomb; water capacity, 6 gals.; gasoline, 5 gals.; frame, angle steel; steering, wheel, tilting post; brakes, transmission and rear hubs; weight, 1,400 lbs.; wheel-base, 76 ins.; wheel dia., 28 ins.; tires, 3 ins.

$950 Ford.

Ford Motor Co., Detroit, Mich.; runabout or tonneau; motor, 2-cyl. horizontal; horsepower, 10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark, dry cells; water-cooled; water capacity, 3 gals.; gasoline, 10 gals.; brakes, differential; weight, 1,300 lbs.; wheel-base, 78 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with 2 side lamps, horn and set of tools; top extra, $100.

$950 Cadillac.

Cadillac Automobile Co., Detroit, Mich.; side-entrance touring car; seats 4 persons; motor, single-cyl. horizontal; horsepower, 9-10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; weight, 1,350 lbs.; wheel-base, 76 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.

$900 Cadillac.

Cadillac Automobile Co., Detroit, Mich.; touring car; detachable rear-entrance, tonneau; seats 4 persons; motor, single-cyl. horizontal; horsepower, 9-10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; steering, wheel; weight, 1,450 lbs.; wheel-base, 76 ins.; wheel dia., 30 ins.; tires, 3 in.

$750 Pierce-Racine.

Pierce Engine Co., Racine, Wis.; runabout with tonneau; seats, 2 to 4 persons; motor, single-cyl. vertical; horsepower, 8; drive, chain; transmission, planetary; speeds, 2 and reverse; ignition, jump spark;

cooler, water; water capacity, 4 gals.; gasoline, 9 gals.; frame, angle steel; steering, wheel; brakes, transmission and rear axle; weight, 1,225 lbs.; wheel-base, 73 ins.; wheel dia, 28 ins.; tires, 3 ins.; car sold equipped with side lights and horn.

$900 Crestmobile.

Crest Mfg. Co., Dorchester, Mass.; Model D tonneau; seats 4 persons; motor air-cooled, single-cyl. upright-front; horsepower, 8 1-2; drive shaft with bevel gears; transmission, planetary; speeds, 2 and reverse; ignition, jump spark; cooler, fan; gasoline capacity, 5 gals.; frame, steel tubing; steering, wheel, with Brown-Lipe gear; brakes, differential; weight, 1,000 lbs. wheel-base, 76 ins.; wheel dia., 28 ins.; tires, 3 in.; car sold equipped with side lamps, horn and necessary tools; top extra, $35 to $150.

$950 Oldsmobile.

Olds Motor Works, Detroit, Mich.; detachable tonneau; seats 4 persons; motor, single-cyl. horizontal; horsepower, 10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, honeycomb; water capacity, 7 gals.; gasoline, 7 gals.; frame, angle steel; steering, wheel, tilting post; brakes, transmission and rear hubs; weight, 1,750 lbs.; wheel-base, 82 ins.; wheel dia., 30 ins.; tires, 3 ins.; top extra, $100.

$950 Elmore Family Tonneau.

Elmore Mfg. Co., Clyde, O.; detachable tonneau; seats 4 persons; motor, single-cyl. horizontal; horsepower, 10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; water-cooled; water capacity, 3 gals.; gasoline, 10 gals.; frame, angle steel; steering, wheel; brakes, differential; weight, 1,300 lbs.; wheel-base, 78 ins.; wheel dia., 28 ins.; tires, 3 1-2 ins.; car sold equipped with 2 oil side lamps, horn and set of tools.

$950 Pope-Waverly Electric.

Pope Motor Car Co., Waverly Dept., Indianapolis, Ind.; electric road wagon; seats 2 persons; horsepower, 3; speeds, 3; drive, gear; steering, center lever; brakes, expansion and armature; battery cells, 30; weight, 1,375 lbs.; wheel-base, 70 ins.; wheel dia, 30 ins.; tires, 2 1-2 ins., F., 3 ins. R.

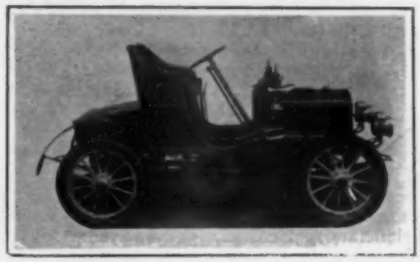
$950 Glide.

The Bartholomew Co., Peoria, Ill.; side-entrance light touring car; seats 4 persons; motor, single-cyl. lengthwise; horsepower, 8; drive, roller chain; transmission, planetary; speeds, 2; ignition, jump spark; water-cooled; water capacity, 6 gals.; gasoline, 9 gals.; frame, armored wood and steel; steering, wheel; brakes, transmission, rear axle, differential; weight, 1,400 lbs.; wheel-base, 80 ins.; wheel dia., 28 ins.; tires, 3 1-2 ins.; car sold equipped with horn, side lamps, odometer, tools, fenders and repair outfit.

$1,000 to $1,450.

$1,000 Oldsmobile.

Olds Motor Works, Detroit, Mich.; light delivery car;; seats 2 persons; carrying capacity, 45 cubic feet; motor, single-cyl. horizontal; horsepower, 10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, honeycomb; water capacity, 7 gals.; gasoline, 7 gals.; frame, angle steel; steering, wheel, tilting post; brakes, transmission and rear hubs; wheel-base, 82 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins., solid.



$1,000 Acme.

Acme Motor Car Co., Reading Pa.; runabount, individual seats; seats 2 persons; motor, 2-cyl. vertical; horsepower, 16; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler single tube coil; centrifugal pump; water capacity, 4 gals.; gasoline, 10 gals.; frame, wood, lined with steel; steering, worm and gear; brakes, rear hubs; weight, 1,250 lbs.; wheel-base, 77 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with oil sidelights, acetylene head-lights, horn and tools; top extra, $150.

$1,000 Yale.

Kirk Mfg. Co., Toledo, O.; rear-entrance touring car; seats 4 persons; motor, 2-cyl. opposed; horsepower, 14-16; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; water-cooled; water capacity, 5 gals.; gasoline, 10 gals.; frame, armored wood; steering, wheel; brakes, rear hubs; weight, 1,600 lbs.; wheel-base, 80 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; sold equipped with oil lights and horn; top extra, $100; same car with side-entrance tonneau, $1,100.

$1,100 Pierce-Racine.

Pierce Engine Co., Racine, Wis.; side-entrance tonneau; seats 5 persons; motor 2-cyl. vertical; horsepower, 14; drive, chain; transmission, planetary; speeds, 3 and reverse; ignition, jump spark; cooler, water-cooled; water capacity, 5 gals.; gasoline, 10 gals.; frame, angle steel; steering, wheel; brakes, transmission and rear axle; weight, 1,500 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with lamps and horn; top extra, $150.

$1,000 Union.

Union Automobile Co., Union City, Ind.; rear-entrance tonneau; seats, 4 persons; motor, 2-cyl. horizontal opposed; horsepower, 12; drive, double chain; transmission, friction disc.; ignition, jump spark; water-cooled; water capacity, 4 gals.; frame, angle steel; steering, wheel; brakes, driving shaft and rear hubs; weight, 1,650 lbs.; wheel-base, 81 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with two side oil lamps, horn and tools.

$1,000 Pope Hartford Model B.

Pope Mfg. Co., Eastern Dept., Hartford, Conn.; light touring car with rear-entrance, detachable tonneau; seats 4 persons; motor, single-cyl. horizontal; horsepower, 10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular, rotary pump; water capacity, 5 gals.; gasoline, 10 gals.; frame, angle steel; steering, wheel with tilting post; brakes, differential and reverse gear; weight, 1,400 lbs.; wheel-base, 72 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with two side lamps and full kit of tools.

$1,050 Baker Electric.

Baker Motor Vehicle Co., Cleveland, O.; runabout; seats 2 persons; drive, chain; speeds, 3; steering, side lever; brakes, rear axle; weight, 700 lbs.; wheel dia., 30 ins.; tires, 3 ins.; car sold equipped with top, mud-guards, 12 cells of battery.

$1,125 Jackson.

Hagmann & Hammerly, Chicago, Ill.; double side-entrance touring car; seats 5 persons; motor, 2-cyl. horizontal; horsepower, 20; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; water-cooled; water capacity, 4 gals.; gasoline, 16 gals.; frame, angle iron; steering, wheel; brakes, differential; weight, 1,600 lbs.; wheel-base, 88 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 2 brass oil lamps, horn and full set of tools; top extra, $150.

$1,050 Cameron.

James Brown Machine Co., Pawtucket, R. I.; side-entrance touring car; seats 5 persons; motor, 3-cyl. vertical; horsepower, 12-15; drive, shaft; transmission, sliding gear; speeds, 2; ignition, jump spark; air-cooled; gasoline capacity, 8 gals.; frame, wood; steering, wheel; brakes, rear hubs; weight, 1,150 lbs.; wheel-base, 90 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with lamps, horn, tools, tire pump and repair kit; top extra, $75.

$1,050 Cameron Surrey.

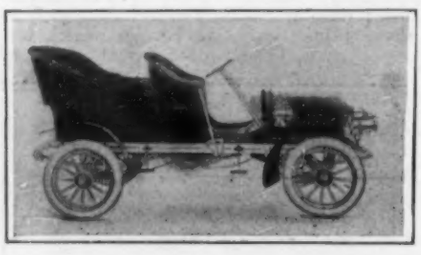
James Brown Machine Co., Pawtucket, R. I; special surrey; seats 5 persons; motor, 3-cyl. vertical; horsepower, 12-15; drive, shaft; transmission, sliding gear; speeds, 2; ignition, jump spark, air-cooled; gasoline capacity, 8 gals.; frame, wood; steering, wheel; brakes, rear hubs; weight, 1,150 lbs.; wheel-base, 90 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with lamps, horn, tools, tire pump and repair kit; top extra, $75.

$1,100 Michigan.

Michigan Automobile Co., Kalamazoo, Mich.; rear-entrance light touring car, removable tonneau; seats 5 persons; motor, 2-cyl. horizontal, opposed; horsepower, 14; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, water-cooled, centrifugal pump; water capacity, 5 gals.; gasoline, 8 gals.; frame, angle steel, steering wheel; brakes, differential and rear hubs; weight, 1,500 lbs.; wheel-base, 80 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with side lamps, horn and tools; top extra, $125 to $150.

$1,200 Union.

Union Automobile Co., Union City, Ind.; side-entrance tonneau; seats, 5 persons; motor, 2-cyl. horizontal opposed; horsepower, 16; drive, double chain; transmission, friction; ignition, jump spark; water-cooled; water capacity, 5 gals.; frame, angle steel; steering, wheel; brakes, driving shaft and rear hubs; weight, 1,750 lbs.; wheel-base, 94 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with two side oil lamps, horn and tools.



$1,200 Wayne.

Wayne Automobile Co., Detroit, Mich.; rear-entrance tonneau; seats 5 persons; motor, 2-cyl. opposed; horsepower, 16; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, water; water capacity, 5 gals.; gasoline, 12 gals.; frame, steel; steering, wheel; brakes, rear axle; weight, 1,550 lbs.; wheel-base, 80 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 3 oil lamps and horn; top extra, $100.

$1,200 Pierce Stanhope.

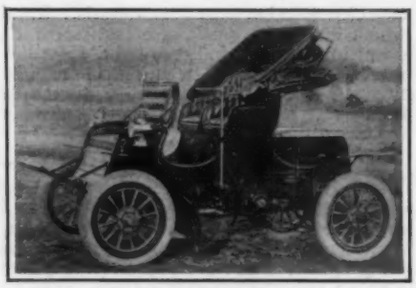
George N. Pierce Co., Buffalo, N. Y.; stanhope, with folding front seat; seats 4 persons; motor, single-cyl. vertical; horsepower, 8; drive, spur gear; transmission, planetary; speeds, 2; ignition, jump spark; cooler, thermo syphon; water capacity, 7 gals.; gasoline, 5 gals.; frame, tubular steel; steering, wheel; brakes, rear hubs; weight, 1,250 lbs.; wheel-base, 70 ins.; wheel dia., 30 ins.; tires, 3 ins.; top extra, $100.

$1,200 Buick.

Buick Motor Co., Jackson and Flint, Mich.; side-entrance touring car; motor, 2-cyl. double opposed; horsepower, 22; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; water-cooled; water capacity, 6 gals.; gasoline, 17 gals.; frame, angle iron; steering, wheel; brakes, 3; weight, 1,740 lbs.; wheel-base, 85 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with lamps, horn and necessary tools.

$1,250 Michigan.

Michigan Automobile Co., Kalamazoo, Mich.; side-entrance light touring car; seats 5 persons; motor, 2-cyl. horizontal; horsepower, 14; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, water-cooled, centrifugal pump; water capacity, 8 gals.; gasoline, 14 gals.; frame, angle steel; steering, tilting wheel; brakes, differential and rear hubs; weight, 1,550 lbs.; wheel-base, 80 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with side lamps, horn, tools; top extra, $125 to $150.



$1,250 Knox.

Knox Automobile Co., Springfield, Mass.; runabout with front folding seat; seats 4 persons; motor, single-cyl. horizontal; horsepower, 8-10; drive, single chain; transmission, planetary; speeds, 2; ignition, jump spark from dry cells; air-cooled; gasoline capacity, 9 gals.; frame, angle steel; steering, lever with Lemp check; brakes, hubs; weight, 1,700 lbs.; wheel-base, 72 ins.; wheel dia., 30 ins.; tires, 30 x 3 1-2 ins.; top extra, $100.

$1,200 Buffum.

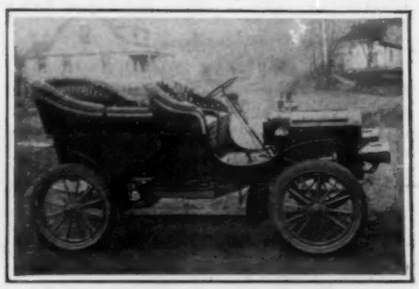
H. H. Buffum Co., Abington, Mass.; single seat touring car; seats 2 persons; motor, 4-cyl. vertical; horsepower, 15; drive, bevel gear; transmission, sliding gear; speeds, 2; ignition, jump spark; cooler, cellular with fan, gear pump; water capacity, 3 gals.; gasoline, 8 gals.; frame, angle steel; steering, rack and pinion; brakes, rear wheel and propeller shaft; weight, 1,000 lbs.; wheel-base, 88 ins.; wheel dia., 32 ins.; tires, 3 ins.; car sold equipped with 2 oil lamps, 2 gas head lights, kit of tools. Cape top extra $50.

$1,200 Duryea.

Duryea Power Co., Reading, Pa., park wagon; seats 6 persons; motor, 3-cyl. inclined; horsepower, 12-15; drive, chain; transmission, planetary: speeds, 2; ignition, make and break, or jump spark with magneto; cooler, tubular; water capacity, 6 gals.; gasoline, 8 gals.; frame, armored wood; steering, vertical centre lever; brakes, transmission and rear sprocket; weight, 1,200 lbs.; wheel-base, 76 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with tools and 2 oil lamps; top extra, $50.

$1,200 Model.

Model Gas Engine Works, Auburn, Ind.; side-entrance touring car; seats 5 persons; motor, 2-cyl. double opposed; horsepower, 12; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular; water capacity, 6 gals.; gasoline, 14 gals.; frame, angle steel; steering, worm and sector; brakes, hub and differential; weight, 1,200 lbs.; wheel-base, 86 ins.; wheel dia., 30 ins.; tires, 3 ins.; car sold equipped with horn, side lamps, complete set of tools; top extra, $150.



$1,250 Elmore Pathfinder.

Elmore Mfg. Co., Cylde, O.; double side-entrance touring car; seats 5 persons; motor, 2-cycle 2-cyl. horizontal; horsepower, 16; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; water-cooled; water capacity, 3 gals.; gasolme, 10 gals.; frame, angle steel; steering, wheel; brakes, rear axle and transmission; weight, 1,500 lbs.; wheel-base, 83 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with two side lamps, horn and tools.

$1,250 Stevens-Duryea.

J. Stevens Arms & Tool Co., Chicopee Falls, Mass.; runabout, folding front seat; seats 4 persons; motor, 2-cyl. horizontal; horsepower, 7; drive, chain; transmission, individual clutch; speeds, 3; ignition, jump spark; water-cooled; water capacity, 5 gals.; gasoline, 6 gals.; frame, tubular steel; steering, lever on post; brakes, differential and rear hubs; weight, 1,350 lbs.; wheel-base, 69 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with oil side lamps, horn, odometer and tools; top extra, $50.

$1,250 Reo.

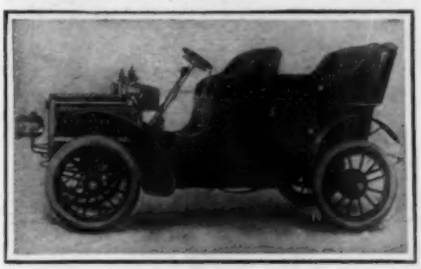
Reo Motor Car Co., Lansing, Mich., side-entrance tonneau; seats 5 persons; motor, 2-cyl. horizontal; horsepower, 16; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, radiator; water capacity, 3 gals.; gasoline, 10 gals.; frame, steel; steering, wheel; brakes, hub; weight, 1,500 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with tools and lamps.

$1,250 Reliance.

Reliance Auto Mfg. Co., Detroit, Mich.; touring car; seats 5 persons; motor, 2-cyl. double opposed; horsepower, 15; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark; water-cooled; water capacity, 4 gals.; gasoline, 10 1-2 gals.; frame, channel iron; steering, wheel; brakes, hub; weight, 1,835 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; sold equipped with tools; top extra, $75.

$1,250 Jackson.

Jackson Automobile Co., Jackson, Mich.; touring car; seats 5 persons; motor, 2-cyl. opposed; horsepower, 18; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; water-cooled; double circulating pump; water capacity, 9 gals.; gasoline, 12 gals.; frame, angle steel; steering, wheel; brakes, differential and transmission; weight, 1,600 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 2 oil lamps, horn and tools; top extra, $125 to $175.



$1,350 Rambler.

Thomas B. Jeffery & Co., Kenosha, Wis.; side-entrance surrey; seats 5 persons; motor, 2-cyl. horizontal; horsepower, 16; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, thermo syphon; water capacity, 100 miles; gasoline, 150 miles; frame, steel; steering, nut and screw, tilting post; brakes, transmission and rear hubs; weight, 2,000 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires 3 1-2 ins.; car sold equipped with 2 oil side lamps, oil tail lamp, 2 gas headlights with separate generators, horn, tools, oilers, pumps and repair kit; top extra, $150.

$1,350 Columbia Electric.

Electric Vehicle Co., Hartford, Conn.; light electric victoria; single motor, 1 1-2 horsepower; drive, chain; speeds, 3; frame, angle iron and wood; steering, side lever; brakes, rear hubs; weight, 1,610 lbs.; wheel-base, 64 ins.; wheel dia., 30 ins.; tires, 3 in.

$1,250 Auburn.

Auburn Automobile Co., Auburn, Ind.; side-entrance surrey; seats 5 persons; motor, 2-cyl. opposed; horsepower, 18; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, circulating pump; water capacity, 7 gals.; gasoline, 16 gals.; frame, angle steel; steering, wheel; brakes, transmission and rear axle; weight, 1,750 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 2 oil lamps and 2 gas lamps.

$1,400 Autocar.

The Autocar Co., Ardmore, Pa.; rear-entrance light touring car; seats 4 persons; motor, 2-cyl. horizontal opposed; horsepower, 12-14; drive, shaft and gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, cellular and fan; water capacity, 3 gals.; gasoline, 10 gals.; frame, armored wood; steering, wheel; brakes, drive shaft and hub; weight, 1,700 lbs.; wheel-base, 76 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 3 lamps, storm apron, tools and tire repair outfit.

$ 1,400 Premier.

Premier Motor Mfg. Co., Indianapolis, Ind.; runabout, with tonneau; seats 4 to 6 persons; motor, vertical 4-cyl. transverse; horsepower, 16; drive, double chain; transmission, planetary; speeds 2; ignition, jump spark; air-cooled; gasoline capacity, 10 gals.; frame, steel; steering, wheel; brakes, differential and rear hubs; weight, 1,500 lbs.; wheel-base, 82 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.; car sold equipped with 2 oil side lamps, repair tools.

$1,400 Oldsmobile.

Olds Motor Works, Detroit, Mich.; side-entrance touring car; seats 5 persons; motor, 2-cyl. double opposed; horsepower, 20; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, honeycomb; water capacity, 8 gals.; gasoline, 15 gals.; frame, angle steel; steering, wheel, tilting post; brakes, transmission and rear hubs; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins. front, 4 ins. rear.

$1,350 Haynes-Apperson.

Haynes-Apperson Co., Kokomo, Ind.; two-passenger touring car, with folding front seat; seats 2 to 4 persons; motor, 2-cyl. horizontal; horsepower, 15; drive, chain; transmission, individual clutch; speeds, 3; ignition, jump spark; water-cooled; water capacity, 4 gals.; gasoline, 6 gals.; frame, angle steel; steering, wheel; brakes, differential; weight, 1,500 lbs.; wheel-base, 81 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.; car sold equipped with lamps, horn and tools.

$1,400 Franklin.

H. H. Franklin Mfg. Co., Syracuse, N. Y.; runabout; seats 2 persons; motor, 4-cyl. vertical; horsepower, 12; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; gasoline capacity, 5 gals.; frame, angle iron and wood; steering, wheel; brakes, rear hubs; weight, 1,000 lbs.; wheel-base, 74 ins.; wheel dia., 28 ins.; tires, 3 ins.

$1,400 Pope-Waverley Electric.

Pope Motor Car Co., Waverly Dept., Indianapolis, Ind.; electric stanhope; seats 2 persons; horsepower, 3; speeds, 3; drive, gear; steering, center lever; brakes, expansion and armature; battery cells, 30; weight, 1,690 lbs.; wheel-base, 70 ins.; dia., 30 ins.; tires, 3 ins.

$1,400 Compound.

Eisenhuth Horseless Vehicle Co., Middletown, Conn.; runabout, with side-entrance tonneau; seats 4 persons; motor, 3-cyl. vertical; horsepower, 12-15; drive, shaft; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, fan, and radiator; water capacity, 4 gals.; gasoline, 20 gals.; frame, steel; steering, wheel; brakes, rear wheel and transmission; weight, 1,250

lbs.; wheel-base, 81 ins.; wheel dia., 28 ins.; tires, 3 ins.; car sold equipped with oil lamps and horn; top extra, $150.

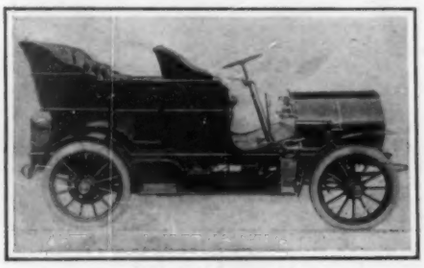
$1,450 Pope-Waverley Electric.

Pope Motor Car Co., Waverley Dept., Indianapolis, Ind.; electric coupé; seats 2 persons; horsepower, 3; speeds, 3; drive, gear; steering, center lever; brakes, expansion and armature; battery cells, 30; weight, 2,115 lbs.; wheel-base, 80 ins.; wheel dia., 30 ins.; tires, 3 ins.

$1,500 to $1,900.

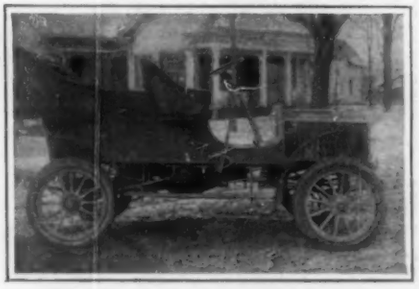
$1,500 Franklin.

H. H. Franklin, Mfg. Co., Syracuse, N. Y.; two-passenger light car; motor, 4-cyl. vertical; horsepower, 12; drive, chain; transmission, planetary; speeds, 3; ignition, jump spark; air-cooled; gasoline capacity, 7 gals.; frame, angle iron; steering, wheel; brakes, rear wheel; weight, 1,100 lbs.; wheel-base, 82 ins.; wheel dia., 28 ins.; tires, 3 ins., front, 760x90 mm., rear.



$1,500 Grout Steam Car.

Grout Bros. Automobile Co., Orange, Mass.; side-entrance tonneau; seats 4 persons; 2-cylinder, 12 horsepower; drive, chain; water capacity, 45 gals.; gasoline, 15 gals.; frame, armored wood; steering, wheel; brakes, rear hub; weight, 1,750 lbs.; wheel-base, 86 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 4 lamps, horn and full set of tools.



$1,500 Dolson.

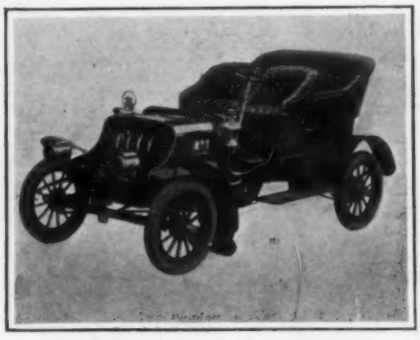
John L. Dolson & Sons, Charlotte, Mich.; side-entrance touring car; seats 5 persons; motor, 2-cyl. horizontal opposed; horsepower, 20; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; water capacity, 5 gals.; gasoline, 15 gals.; frame, T steel, channel iron cross members; steering, wheel, with tilting column; brakes, differential and transmission; weight, 2,000 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 front, 4 in. rear; car sold equipped with 2 oil side lamps, acetylene headlight, horn, top extra, $100.

$1,500 Overland.

Standard Wheel Co., Terre Haute, Ind.; side-entrance tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 15-16; drive, bevel gear; transmission, planetary; speeds, 2; ignition, jump spark; cooler, disc radiator, thermo syphon; water capacity, 4 gals.; gasoline, 10 gals.; frame, rolled sheet steel; steering, wheel; brakes, transmission and hubs; weight, 1,500 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with Dietz oil side lights, lens mirror searchlight, horn and tool kit; cape cart top extra, $100.

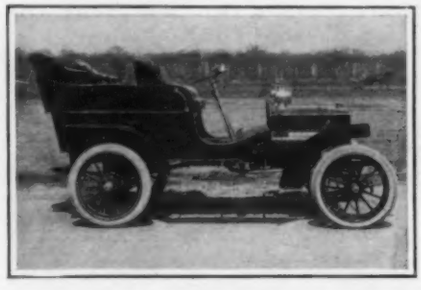
$1,550 Maxwell.

Maxwell-Brisco Motor Co., Tarrytown, N. Y.; side-entrance touring car; seats 5 persons; motor, 2-cyl. transverse horizontal; horsepower, 16-20; drive, shaft; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, thermo syphon; water capacity, 3 gals.; gasoline, 12 gals.; frame, steel; steering, wheel; brakes, two; weight, 1,800 lbs.; wheel-base, 84 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with oil lamps and horn; top extra, $100.



$1,500 Marion.

Marion Motor Car Co., Indianapolis, Ind.; side-entrance touring car, detachable tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 16; drive, double chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; gasoline, capacity, 12 gals.; frame, armored wood; steering, wheel; brakes, hubs; weight, 1,600 lbs.; wheel-base, 96 ins.; wheel dia., 30 ins., tires, 3 1-2 ins.; car sold equipped with 2 gas lamps, 2 oil side lamps, tail lamp, 2 rain aprons, tools; top extra, $150.



$1,700 Northern.

Northern Mfg. Co., Detroit, Mich.; side-entrance surrey; seats 5 persons; motor, 2-cyl. double opposed; horsepower, 17; drive shaft; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; water capacity, 3 1-2 gals.; gasoline, 10 gals.; steering, wheel; brakes, transmission and rear hubs; weight, 2,100 lbs.; wheel-base, 100 ins.; wheel dia., 30 ins.; tires, 4 ins.; car sold equipped with 2 oil lamps, horn and tools; top extra, $100.

$1,500 St. Louis.

St. Louis Motor Car Co., St. Louis Mo.; side-entrance touring car; seats 5 persons; single-cyl.; horsepower, 12; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular; water capacity, 6 gals.; gasoline, 10 gals.; frame, angle steel; steering, tilting wheel; brakes, transmission and rear hubs; weight, 1,725 lbs.; wheel-base, 82 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 2 headlights, 2 sidelights, 1 tail light, set of tools and extra spark plugs; top extra, $125.

$1,500 Duryea.

Duryea Power Co., Reading, Pa., folding rear phaeton; seats 6 persons; motor, 3-cyl. inclined; horsepower, 12-15; drive, chain; transmission, planetary; speeds, 2; ignition, make and break, or jump spark and magneto; cooler, tubular; water capacity, 10 gals.; gasoline, 8 gals.; frame, armored wood; steering, vertical centre lever; brakes, transmission and rear sprocket; weight, 1,200 lbs.; wheel-base, 79 ins.; wheel dia, 36 ins. rear, 30 ins. front; tires, 3 ins.; car sold equipped with tools and 2 oil lamps; top extra, $50.

$1,500 Mitchell.

Mitchell Motor Car Co., Racine, Wis.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical, tandem; horsepower, 20; drive, shaft; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, radiator, gear pump, fan; water capacity, 3 gals.; gasoline, 10 gals.; frame, steel; steering, wheel; brakes, driving shaft and rear axle; weight, 1,750 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with side lamps, tools, etc.

$1,500 Premier.

Premier Motor Mfg. Co., Indianapolis, Ind.; side-entrance tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 16-18; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; gasoline capacity, 10 gals.; frame, angle steel; steering, wheel; brakes, differential,

weight, 1,600 lbs.; wheel-base, 96 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.; car sold equipped with 2 oil lamps, set of tools and tire repair outfit.

$1,500 Knox.

Knox Automobile Co., Springfield, Mass.; runabout with front folding seat; seats 4 persons; motor, 2-cyl. horizontal; horsepower, 14-16; drive, single chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; gasoline capacity, 16 gals.; frame, angle steel; steering, irreversible lever or wheel; brakes, hubs; weight, 1,850 lbs.; wheel-base, 81 ins.; wheel dia., 30 ins.; tires, 4 ins.; top extra, $100.

$1,750 Columbia.

Electric Vehicle Co., Hartford, Conn.; side-entrance tonneau; seats 4 persons; motor, 2-cyl. opposed; horsepower, 16; drive, shaft; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, cellular; water capacity, 5 gals.; gasoline, 10 gals.; frame, steel, steering, wheel; brakes, rear hubs; weight, 1,850 lbs.; wheel-base, 81 1-2 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with side lamps, boot and tools; top extra, $200.

$1,650 Orient.

Waltham Mfg. Co., Waltham, Mass.; side-entrance touring car; seats 5 persons; motor, 4-cyl. tandem; horsepower, 14-16; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; air-cooled; gasoline capacity, 7 gals.; frame, steel; steering, wheel; two brakes; weight, 1,450 lbs.; wheel-base, 84 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.

$1,650 Studebaker.

Studebaker Automobile Co., South Bend, Ind.; side-entrance touring car; seats 5 persons; motor, 2-cyl. horizontal opposed; horsepower, 14-16; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, pump and radiating coil; water capacity, 6 gals.; gasoline, 10 gals.; frame, armored wood; steering, wheel; brakes, rear wheel and rear axle; weight, 1,800 lbs.; wheel-base, 82 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with two side lights, tail light, horn and full outfit of tools.

$1,500 Haynes-Apperson.

Haynes-Apperson Co., Kokomo, Ind.; side-entrance light touring car; seats 4 persons; motor, 2-cyl. horizontal; horsepower, 15; drive, shaft roller gear; transmission, individual clutch; speeds, 3; ignition, jump spark; water-cooled; water capacity, 2 1-2 gals.; gasoline, 6 gals.; frame, steel; steering, wheel; brakes, hub; weight, 1,400 lbs.; wheel-base, 81 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.; car sold equipped with lamps, horn and tools.

$1,600 Northern.

Northern Mfg. Co., Detroit Mich., rear-entrance tonneau; seats 5 persons; motor, 2-cyl. double opposed; horsepower, 17; drive, shaft; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; water capacity, 3 1-2 gals; gasoline, 10 gals.; frame, angle steel; steering, wheel; brakes, transmission and rear hubs; weight, 2,100 lbs.; wheel-base, 100 ins.; wheel dia., 30 ins.; tires, 4 ins.; car sold equipped with 2 oil lamps, horn and tools; top extra, $150.

$1,650 Franklin.

H. H. Franklin, Mfg. Co., Syracuse, N. Y.; rear-entrance light tonneau; seats 4 persons; motor, 4-cyl. vertical; horsepower, 12; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; gasoline capacity, 7 gals.; frame, angle iron; steering, wheel; brakes, rear wheel; weight, 1,250 lbs.; wheel-base, 82 ins.; wheel dia., 28 ins.; tires, 3 ins. front, 760x90mm., rear.

$1,600 Logan.

Logan Construction Co., Chillicothe, O.; side-entrance touring car; seats 5 persons; motor, 2-cyl. horizontal opposed; horsepower, 20; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark, duplicate set dry batteries; cooler, tubular, with copper fins; water capacity, 7 gals.; gasoline, 11 gals.; frame, angle steel; steering, rack and pinion wheel; brakes, contracting band; weight, 1,620 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with side lamps, tail lamp, horn and tools; top extra, $100.

$1,700 Franklin.

H. H. Franklin, Mfg. Co., Syracuse, N. Y.; four-passenger-tonneau, tilting front seat; motor, 4-cyl. vertical; horsepower, 12; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; gasoline capacity, 12 gals.; frame, angle iron; steering, wheel; brakes, countershaft and rear wheel; weight, 1,250 lbs.; wheel-base, 78 ins.; wheel dia., 28 ins.; tires, 3 ins. front, 760x90 mm., rear.

$1,850 Pungs Finch.

Pungs-Finch Auto & Gas Engine Co., Detroit, Mich.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 22; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water and fan; water capacity, 5 gals.; gasoline, 18 gals.; frame, steel; steering, worm; brakes, transmission and rear wheel; weight, 1,800 lbs.; wheel-base, 97 ins.; wheel dia, 32 ins.; tires, 3 1-2 ins.; car sold equipped with 2 oil lamps, tail lamp and horn.

$1,750 Knox.

Knox Automobile Co., Springfield, Mass.; rear folding seat surrey; seats 4 persons; 2-cyl. horizontal; horsepower, 14-16; drive, single chain; transmission, planetary; speeds, 2; ignition, jump spark from dry cells; air-cooled; gasoline capacity, 16 gals.; frame, angle steel; steering, irreversible wheel or lever; brakes, hubs; weight, 1,950 lbs.; wheel-base, 87 ins.; wheel dia., 30 ins.; tires, 4 ins.; top extra, $100.

$1,750 Studebaker Electric.

Studebaker Automobile Co., South Bend, Ind.; victoria phaeton; seats 2 persons; motor, 50 volts, 30 amperes; battery, 28 cells; steering, side lever; weight, 2,000 lbs.; wheel-base, 68 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; sold equipped with set of tools, tire pump, tire repair outfit, charging plug, and 15 ft. cable.

$1,600 Baker Electric.

Baker Motor Vehicle Co., Cleveland, O.; stanhope; seats 2 persons; drive, chain; speeds, 3; steering, side lever; brakes, motor band wheel and rear axle; weight, 975 lbs.; wheel dia., 30 ins.; tires, 3 ins.

$1,800 Royal Electric.

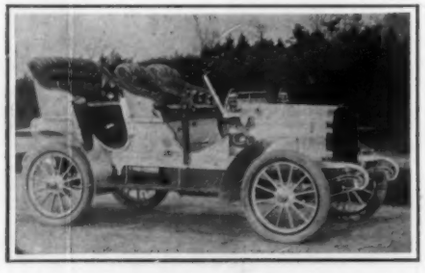
Royal Automobile Co., Chicago, Ill.; electric victoria; seats 3 persons; motors, two, 1 3-4 horsepower; cells, 40; drive, direct on rear wheels; brakes, hub; weight, 2,200 lbs.; wheel-base, 72 ins.; wheel dia., 29, 31, ins.; tires, 2 1-2 ins. solid; sold equipped with 2 lamps, bell, rubber laprobe.

$1,000 Pungs-Finch.

Pungs-Finch Auto & Gas Engine Co., Detroit, Mich.; touring car, with detachable tonneau; seats 4 persons; motor, 4-cyl. vertical; horsepower, 20; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water and fan; water capacity, 5 gals.; gasoline, 18 gals.; frame, steel; steering, worm; brakes, transmission and rear wheel; weight, 1,750 lbs.; wheel-base, 80 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 2 oil lamps, tail lamp and horn.

$1,500 Northern.

Northern Mfg. Co., Detroit, Mich.; single seated touring car; seats 2 persons; motor, 2-cyl. double opposed; horsepower, 17; drive, shaft; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; water capacity, 3 1-2 gals.; gasoline, 10 gals.; frame, angle steel; steering, wheel; brakes, transmission and rear hubs; weight, 1,500 lbs.; wheel-base, 88 ins.; wheel dia. 30 ins.; tires, 4 ins.; car sold equipped with 2 oil lamps, horn and tools; top extra, $100.

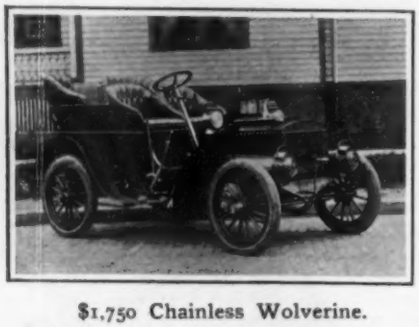


$1,800 Winton.

Winton Motor Carriage Co., Cleveland, O.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 16-20; drive, shaft; transmission, individual clutch; speeds, 3; ignition, magneto; cooler, centrifugal pump; gasoline capacity, 15 gals.; frame, steel; steering, screw and nut; brakes, hubs and shaft; weight, 1,800 lbs.; wheel-base, 88 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with side oil lamps, horn and tools.

$1,900 Knox.

Knox Automobile Co., Springfield, Mass.; side-entrance tonneau; seats 5 persons; motor, 2-cyl. horizontal; horsepower, 14-16; drive, single chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; gasoline capacity, 16 gals.; frame, angle steel; steering, wheel or lever; brakes, hubs; weight, 2,000 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 4 ins.; top extra, $100.



$1,750 Chainless Wolverine.

Reid Mfg. Co., Detroit, Mich.; side-entrance touring car; seats 5 persons; motor, 2-cyl. opposed; horsepower, 20; drive, shaft direct; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water-cooled; water capacity, 6 gals.; gasoline, 10 gals.; frame, angle steel; steering, wheel, worm and segment; brakes, transmission and rear wheel; weight, 1,702 lbs.; wheel-base, 88 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with two acetylene searchlights, generator, two oil side lights, tail light, tools and complete repair outfit; top extra, $60 to $150.

$2,000 to $2,250.

$2,000 Corbin.

Corbin Motor Vehicle Corporation, New Britain, Conn.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 16-20; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; air-cooled; gasoline capacity, 11 gals.; frame, steel; steering, wheel; brakes, transmission and rear hubs; weight, 1,650 lbs.; wheel-base, 94 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.

$2,200 Oldsmobile.

Olds Motor Works, Detroit, Mich.; eleven-passenger 'bus; motor, 2-cyl. vertical; horsepower, 16; drive, double side chain; transmission, planetary; ignition, jump spark; cooler, disc radiator; water capacity, 10 gals.; gasoline, 11 gals.; frame, steel; steering, wheel; brakes, transmission and hub; wheel-base, 83 ins.; wheel dia., 30 ins.; tires, 4 1-2 ins. solid.

$2,000 Rambler.

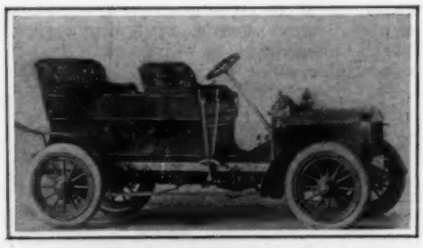
Thomas B. Jeffery & Co., Kenosha, Wis.; side-entrance surrey, with canopy top, glass front and side curtains; seats 5 persons; motor, 2-cyl. horizontal; horsepower, 20; drive, double chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, thermo syphon; water capacity, 100 miles; gasoline, 150 miles; frame, steel; steering, nut and screw, movable post; brakes, transmission and rear hubs; weight, 2,200 lbs.; wheel-base, 100 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with 2 oil side lamps, tail lamp, 2 gas headlights with lens mirror reflectors and separate generators, horn, tools, oilers, pumps and repair kit.

$2,000 Ford.

Ford Motor Co., Detroit, Mich.; side-entrance tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 20; drive, shaft; transmission, planetary; speeds, 2; ignition, jump spark; water-cooled; water capacity, 7 gals.; gasoline, 12 gals.; frame, steel; steering, worm and gear; brakes, hub; weight, 1,725 lbs.; wheel-base, 93 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.; car sold equipped with 2 side lamps, horn and set of tools; top extra, $250.

$2,000 Compound.

Eisenhuth Horseless Vehicle Co., Middletown, Conn.; side-entrance tonneau; seats 5 persons; motor, 3-cyl. vertical; horsepower, 24-28; drive, double chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, fan and radiator; water capacity, 6 gals.; gasoline, 20 gals.; frame, steel; steering, wheel; brakes, rear wheel and countershaft; weight, 2,150 lbs.; wheel-base, 100 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with oil lamps and horn; top extra, $250.

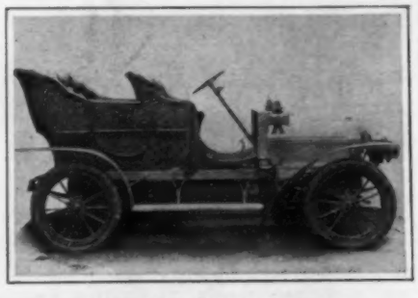


$2,000 Autocar.

The Autocar Co., Ardmore, Pa.; double side-entrance tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 16-20; drive, shaft and gear; transmission, sliding gear; speeds, 4; ignition, jump spark; cooler, cellular and fan; gasoline capacity, 15 gals.; frame, wood, reinforced by pressed steel; steering, wheel; brakes, driving shaft and hub; weight, 1,900 lbs.; wheel-base, 96 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with 3 lamps, storm apron, tools and tire repair outfit.

$2,000 Orient.

Waltham Mfg. Co., Waltham, Mass.; side-entrance touring car; seats 5 persons; motor, 4-cyl. tandem; horsepower, 18-20; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; air-cooled; gasoline capacity, 10 gals.; frame, steel; steering, wheel; two brakes; weight, 1,700 lbs.; wheel-base, 96 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.



$2,000 Stoddard-Dayton.

Dayton Motor Car Co., Dayton, O.; side-entrance; seats 5 persons; motor, 4-cyl. vertical; horsepower, 25; drive, shaft; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular with fan; water capacity, 4 gals.; gasoline, 14 gals.; frame, steel; steering, wheel; brakes, transmission and rear wheel; weight, 1,800 lbs.; wheel-base, 96 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.; car sold equipped with 2 oil side lamps.

$2,000 Model.

Model Gas Engine Works, Auburn, Ind.; side-entrance touring car; seats 5 persons; motor, 2-cyl. double opposed; horsepower, 20; drive, chain; transmisison, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular; water capacity, 8 gals.; gasoline, 15 gals.; frame, angle steel; steering, worm and sector; brakes, hub and differential; weight, 1,700 lbs.; wheel-base, 90 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.; sold equipped with side lamps, two gas lamps with separate generator, horn, tools; top extra, $200.

$2,000 Studebaker Electric.

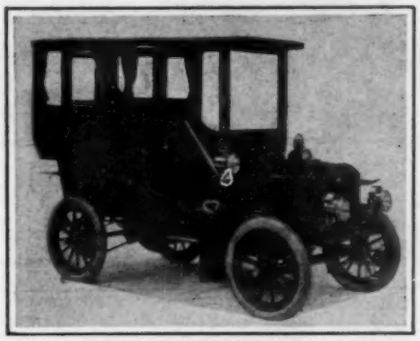
Studebaker Automobile Co., South Bend, Ind.; stanhope; seats 2 persons; motor, 50 volts, 30 amperes; battery, 50 cells; steering, side lever; weight, 1,900 lbs.; wheel-base, 71 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; sold equipped with set of tools, tire pump, tire repair outfit, charging plug and 15-ft. cable; top extra, $60.

$2,250 Northern.

Northern Mfg. Co., Detroit, Mich.; limousine; seats 4 persons; motor, 2-cyl. double opposed; horsepower; 17; drive, shaft; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; water capacity, 3 1-2 gals.; gasoline, 10 gals.; frame, angle steel; steering wheel; brakes, transmission and rear hubs; weight, 2,300 lbs.; wheel-base, 100 ins.; wheel dia., 30 ins.; tires, 4 ins.; car sold equipped with 2 oil lamps, horn and tools; glass front extra, $50.

$2,250 Lane Steamer.

Lane Motor Vehicle Co., Poughkeepsie, N. Y.; side-entrance touring car; seats 5 persons; engine, 2-cyl. steam; horsepower, 15; drive, chain; cooler, Lane condenser; water capacity, 20 gals.; gasoline, 17 gals.; frame, steel; steering, wheel; brakes, differential and hubs; weight, 2,000 lbs.; wheel-base, 97 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with tools.



$2,000 Acme.

Acme Motor Car Co., Reading, Pa.; opera 'bus; rear entrance; seats 6 persons; motor, 2-cyl. vertical; horsepower, 16; drive, double chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, single tube coil with centrifugal pump; water capacity, 4 gals.; gasoline, 15 gals.; frame, wood, lined with steel; steering, screw and nut; brakes, counter-shaft and rear hubs; weight, 2,000 lbs.; wheel-base, 84 ins.; wheel dia., 32 ins. rear, 30 ins., front; car sold equipped with electric light in body, oil side and rear light, acetylene head light, horn and tools.

$2,250 Pope-Waverley Electric.

Pope Motor Car Co., Waverley Dept., Indianapolis, Ind.; electric station wagon; seats 4 persons; horsepower, two 3-h. p., motors; speeds, 3; drive, gear; steering, side lever; brakes, expansion and armature; battery cells, 41; weight, 2,550 lbs.; wheel-base, 78 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.

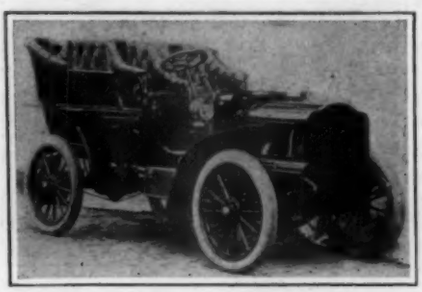
$2,500 to $2,800.

$2,500 Winton.

Winton Motor Carriage Co., Cleveland, O.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 24-30; drive, shaft; transmission, individual clutch; speeds, 3; ignition, magneto; cooler, centrifugal pump; gasoline capacity, 15 gals.; frame, steel; steering, screw and nut; brakes, hubs and shaft; weight, 2,100 lbs.; wheelbase, 102 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with side oil lamps, horn and tools.

$2,500 Baker Electric.

Baker Motor Vehicle Co., Cleveland, O.; electric surrey; seats 4 persons; drive, bevel gear; speeds, 3; steering, side lever; weight, 1,800 lbs.; wheel-base, 89 ins.; wheel dia., 36 ins.; tires, 4 1-2 ins.; top extra, $150.



$2,500 White Steam Car.

White Sewing Machine Co., Cleveland, O.; touring car; seats 5 persons; motor. 2-cyl. compound; horsepower, 15; drive, shaft and bevel gear; cooler, fan-cooled condenser; water capacity, 17 gals.; gasoline, 15 gals.; frame, armored wood; steering, wheel; brakes, engine and rear wheel; weight, 2,200 lbs.; wheel-base, 93 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with pair of oil lamps, rear oil lamp, horn, tire repair kit, tool-box with complete set of tools and small extras; canopy top extra, $200; cape hood extra, $100.

$2,500 Yale.

Kirk Mfg. Co., Toledo, O.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 24-28; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; water-cooled; water capacity, 6 gals.; gasoline, 18 gals.; frame, angle steel; steering, wheel; brakes, transmission and hubs; weight, 2,500 lbs.; wheel-base, 104 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with 2 headlights, generator, 2 oil lamps, tail light, horn and tools; top extra, $250.

$2,500 Upton.

Upton Motor Co., Lebanon, Pa.; side-entrance tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 30; drive, propeller shaft; transmission, sliding; speeds, 3; ignition, high-tension magneto; cooler, tubular; gasoline capacity, 100 miles; frame, steel; steering, worm and nut; brakes, transmission and rear wheel; wheel-base, 100 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with lamps, horn and mats; top extra, $200.

$2,500 Frayer-Miller.

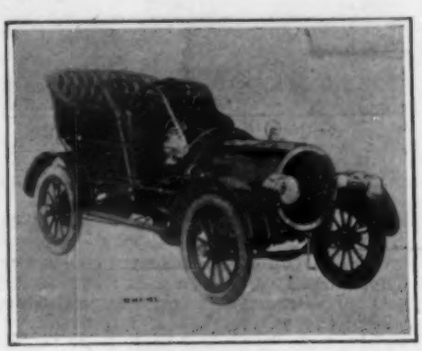
Oscar Lear Automobile Co., Columbus, O.; side-entrance touring car, detachable tonneau; seats 5 persons; motor, 4-cyl.; horsepower, 24; drive, shaft and bevel gear; transmission, sliding gear; speeds, 3; air-cooled; gasoline capacity, 16 gals.; frame, steel; steering, wheel; brakes, rear hubs; weight, 1,650 lbs.; wheel-base, 96 ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.; car sold equipped with 2 side oil lamps, 2 gas lamps and rear oil lamp; top extra, $250.

$2,500 Springer.

Springer Motor Vehicle Co., New York City; rear-entrance tonneau; seats 5 persons; motor, 2-cyl. horizontal; horse-power, 12-14; drive, 1 Renold and 2 side chains; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular, copper; water capacity, 6 gals.; gasoline, 15 gals.; frame, steel; steering, wheel; brakes, differential and hubs; weight, 1,800 lbs.; wheel-base, 92 ins., wheel dia., 30 F. 34 R. ins.; tires, 3 F., and 4 1-2 R.

$2,500 Phelps.

Phelps Motor Vehicle Co., Stoneham, Mass.; side-entrance touring car; seats 5 persons; motor, 3-cyl. vertical; horsepower, 20; drive, bevel gear; transmission, individual clutch; speeds, 3; ignition, primary spark; water-cooled; water capacity, 5 gals.; gasoline, 15 gals.; steering, wheel; brakes, differential and hubs; weight, 1,900 lbs.; wheel-base, 112 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with 2 oil lamps, 2 gas lamps and tools; top extra, $250.



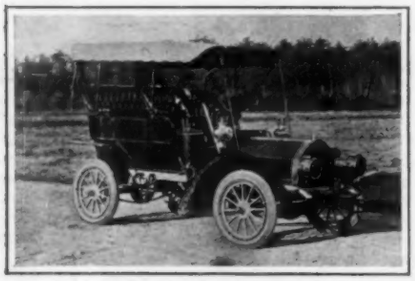
$2,500 National.

National Motor Vehicle Co., Indianapolis, Ind.; side-entrance touring car, detachable tonneau; seats 5 persons; motor, 4-cylinder; horspower, 24-30; drive, shaft and bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler,

Briscoe radiator, fan and pump; water capacity, 4 1-2 gals.; gasoline, 15 gals.; frame, steel; steering, wheel; brakes, rear hubs and driving shaft; weight, 2,200 lbs.; wheel-base, 98 ins.; wheel dia.; 34 ins.; tires, 4 ins.; car sold equipped with 5 lamps, tools, storm apron and tire repair outfit.

$2,800 Cleveland.

Cleveland Motor Car Co., Cleveland, O.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 18; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, honeycomb; water capacity, 4 gals.; gasoline, 15 gals.; frame, steel; steering, wheel; brakes, propeller shaft and rear hubs; weight, 1,800 lbs.; wheel-base, 98 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with horn, 2 acetylene headlights, generator, 2 oil side lamps, 1 tail lamp and tool kit; top extra, $200.



$2,500 Stevens-Duryea.

J. Stevens Arms & Tool Co., Chicopee Falls, Mass.; side-entrance tourin car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 20; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; water-cooled; water capacity, 3 gals.; gasoline, 14 gals.; frame, steel; steering, wheel; brakes, transmission and rear hubs; weight, 1,650 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.; car sold equipped with aluminum body, oil side lamps, tail lamp, horn and tools; top extra, $75.

$2,500 St. Louis.

St. Louis Motor Carriage Co., St. Louis, Mo.; side-entrance touring car; seats 5 persons; motor, 3-cylinder; horsepower, 24; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, gear pump; water capacity, 4 gals.; gasoline, 15 gals.; frame, angle steel; steering, tilting wheel; brakes, rear hub and transmission; weight, 2,200 lbs.; wheel-base, 96 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with 2 headlights, 2 sidelights, 1 tail light, tool set and extra spark plugs; top extra, $150.

$2,750 Acme.

Acme Motor Car Co., Reading, Pa.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 30; drive, double chain; transmission, sliding gear; speeds, 4; ignition, jump spark with Remy magneto alternator; cooler, tubular, with fan; water capacity, 3 gals.; gasoline, 15 gals.; frame, steel; steering, screw and nut; brakes, counter-shaft and rear hubs; weight, 2,275 lbs.; wheel-base, 102 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with cape cart top, oil side and tail lights, acetylene headlights, horn, tool-box, tools and pump.

$2,500 Franklin.

H. H. Franklin, Mfg. Co., Syracuse, N. Y.; light side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 20; drive, propeller shaft; transmission, sliding gear; speeds, 3; ignition, jump spark; air-cooled; gasoline capacity, 12 gals.; frame, wood; steering, wheel; brakes, countershaft and rear wheel; weight, 1800 lbs.; wheel-base, 100 ins.; wheel dia., 30 ins.; tires, 4 ins.

$2,800 Locomobile.

Locomobile Co. of America, Bridgeport, Conn.; side-entrance tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 15-20; drive, double chain; transmission, sliding gear; speeds, 3; ignition, make and break with magneto; cooler, cellular, with fan, centrifugal pump; gasoline capacity, 18 gals.; frame, steel; steering, wheel, worm gears; brakes, differential and rear hubs; weight, 1800 lbs.; wheel-base, 92 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with 2 acetylene headlights with separate generator, side and rear lamps, horn, storm covers, engine boot, set of tools, spare parts and accessories.

$3,000 to $3,900.

$3,000 Studebaker.

Studebaker Automobile Co., South Bend, Ind.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 20; drive, propeller shaft and bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark, dynamo with auxiliary storage battery; cooler, cellular; water capacity, 3 gals.; gasoline, 14 gals.; frame, steel; steering, wheel; brakes, driving shaft and rear wheels; weight, 2,100 lbs.; wheel-base, 98 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with side lights, tail light, horn and full equipment of tools.

$3,000 Packard.

Packard Motor Car Co., Detroit, Mich.; rear-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 22; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water; water capacity, 5 gals.; gasoline, 20 gals.; frame, steel; steering, wheel; brakes, rear wheels; weight, 2,200 lbs.; wheel-base, 94 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with oil side and tail lamps, horn, storm aprons, jack, tools and tire outfit; top extra, $100 to $300.

$3,000 Rambler Limousine.

Thomas B. Jeffery & Co., Kenosha, Wis.; closed theater and depot wagon; horsepersons; motor, 2-cyl. horizontal; horsepower, 20; drive, double chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, thermo syphon; water capacity, 100 miles; gasoline, 150 miles; frame, steel; steering, nut and screw, tilting post; brakes, transmission and rear hubs; weight, 2,400 lbs.; wheel-base, 100 ins.; wheel dia., 32 ins.; tires, 4 ins.; car sold equipped with 2 oil side lamps, oil tail lamp, 2 gas headlights with lens mirror reflectors and separate generators, horn, tools, oilers, pump and repair kit.

$3,000 Haynes-Apperson.

Haynes-Apperson Co., Kokomo, Ind.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 35-40; drive, roller gear; transmission, individual clutch; speeds, 3; ignition, jump spark, and batteries; cooler, fan-cooled; water capacity, 3 gals.; gasoline, 14 gals.; frame, steel; steering, wheel; brakes, rear hubs and driving shaft; weight, 2,800 lbs.; wheel-base, 108 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold equipped with full set of lamps, tools; top extra, $200.

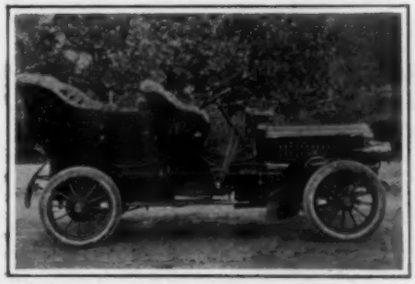
$3,000 Baker Electric.

Baker Motor Vehicle Co., Cleveland, O.; electric depot carriage; seats 4 persons;

drive, bevel gear; speeds, 3; steering, side lever; brakes, rear axle and motor brake wheel; weight, 2,300 lbs.; wheel-base, 95 ins.; wheel dia., 36 ins.; tires, 4 1-2 ins.

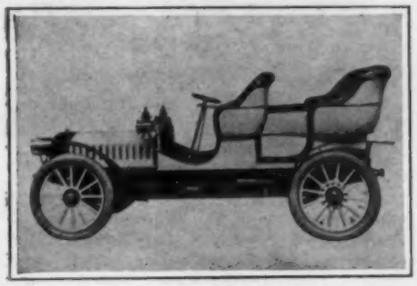
$3,000 Royal Tourist.

Royal Motor Car Co., Cleveland, O.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 32-38; drive, shaft; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, self-container radiator; water capacity, 8 gals.; gasoline, 20 gals.; frame, steel; steering, wheel, worm; brakes, shaft and rear hubs; weight, 2,400 lbs.; wheel-base, 108 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold epuipped with 2 gas, 2 oil and 1 tail lamp, horn and set of tools; top extra, $250.



$3,000 Thomas "Flyer."

E. R. Thomas Motor Co., Buffalo, N. Y.; side-entrance touring car; seats 7 persons; motor, 4-cyl. vertical; horsepower, 40; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, cellular; water capacity, 3 gals.; gasoline, 19 gals.; frame, steel; steering, wheel; brakes, rear hub; weight, 2,500 lbs.; wheel-base, 110 ins.; wheel dia., 34 ins.; tires, 4 in. front, 4 1-2 ins. rear.

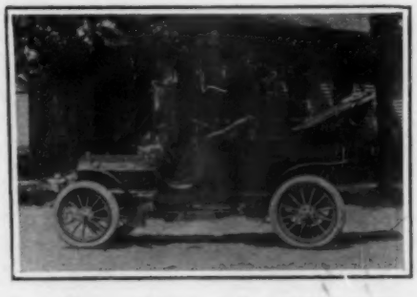


$3,000 Austin.

Austin Automobile Co., Grand Rapids, Mich.; side-entrance touring car; seats 5 persons; motor, 4-cyl. upright; horsepower, 35; drive, bevel gear; transmission, planetary; speeds, 3; ignition, jump spark, storage batteries; cooler, water; water capacity, 4 gals.; gasoline, 17 gals.; frame, angle iron; steering, worm and nut; brakes, transmission and rear wheels; weight, 2,400 lbs.; wheel-base, 108 ins.; wheel dia., 36 ins.; tires, 4 1-2 ins.; car sold equipped with full set of tools and five lamps; top extra, $150.

$3,500 Standard.

Standard Motor Construction Co., Jersey City, N. J.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 25; drive, bevel gear; transmission, sliding gear; speeds, 3; make and break, cooler, cellular; water capacity, 3 gals.; gasoline, 15 gals.; frame, steel; steering, wheel; brakes, drive, shafts and hubs; weight, 2,200 lbs.; wheel-base, 109 ins.; wheel dia., 34 ins.; tires, 4 ins.; top extra. $250.



$3,500 Apperson Touring Car

Apperson Bros. Automobile Co., Kokomo Ind.; side-entrance touring car; seats 5 persons; motor 4-cyl. vertical; horsepower, 24; drive, double chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, radiator and fan; water capacity, 6 gals.; gasoline, 23 gals.; frame, steel; steering wheel, worm and segment; brakes, usual; weight, 2,400 lbs.; wheel-base, 102 ins.; wheel dia., 32 ins. front, 34 ins., rear; tires, 815x105 mm. and 875x105 mm.; car sold equipped with lamps, horns and tools; top extra, $150.

$3,200 Peerless.

Peerless Motor Car Co., Cleveland, O.; touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 24; drive, bevel gear; transmission, sliding gear; speeds, 4; ignition, jump spark and magneto; water-cooled; water capacity, 3 1-2 gals.; gasoline, 15 gals.; frame, steel; steering, wheel; brakes, rear hubs; weight, 2,400 lbs.; wheel-base, 102 ins.; wheel dia., 34 ins.; tires, 4 ins.

$3,900 Standard.

Standard Motor Construction Co., Jersey City, N. J.; landaulet; motor, 4-cyl. vertical; horsepower, 25; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, magneto; cooler, cellular; water capacity, 3 gals.; gasoline, 15 gals.; steering, wheel; brakes, drive shaft and hubs; weight, 2,500 lbs.; wheel-base, 109 ins.; wheel dia., 34 ins.; tires, 4 ins.

$3,500 Benz-Parsifal.

Mead Cycle Co., Chicago, Ill.; touring car; seats 5 persons; motor, 2-cyl. vertical; horsepower, 10-12; drive, shaft; transmission, sliding gear; speeds, 3; ignition, magneto; cooler, cellular; water capacity, for 1,000 miles; gasoline, for 250 miles; frame, armored wood; steering, wheel, with worm gear and sector; brakes, differential and rear hubs; weight, 1,700 lbs.; wheel-base, 84 ins.; wheel dia., 32 ins.; tires, 810 mm. x 100 mm.

$3,500 Packard.

Packard Motor Car Co., Detroit, Mich.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 28; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water; water capacity, 56 gals; gasoline, 20 gals.; frame, steel; steering, wheel; brakes, rear hubs; weight, 2,200 lbs.; wheel-base, 106 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with oil side and tail lamps, horn, jack, storm aprons, tools, tire repair outfit; top extra, $100 to $300.

$3,500 Springer.

Springer Motor Vehicle Co., New York City; side-entrance touring car; seats 7 persons; motor, 4 opposed-cyl. horizontal; horsepower, 18-24; drive, 1 Renold and 2 side chains; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, copper, tubular; water capacity, 8 gals.; gasoline, 25 gals.; frame, steel; steering, wheel; brakes, differential and hubs; weight, 2,600 lbs.; wheel-base, 105 ins.; wheel dia., 32 front, 34 rear, ins.; tires, 4 front and 4 1-2 rear.

$3,500 Pierce Great Arrow.

George N Pierce Co., Buffalo, N. Y.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 24-28; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular; water capacity, 5 gals.; gasoline, 17 gals.; frame, steel; steering, wheel; brakes, rear hubs; weight, 2,500 lbs.; wheel-base, 100 ins.; wheel dia., 34 ins.; tires, 4 ins.;

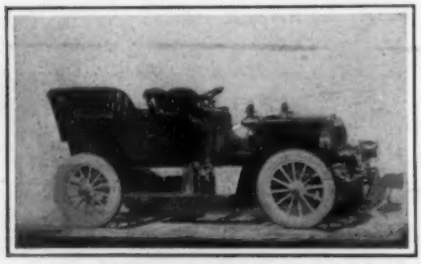
car sold equipped with oil side and tail lamps, horn and set of tools; top extra, $150 to $250.

$3,500 Winton.

Winton Motor Carriage Co., Cleveland, O.; side-entrance tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 40-50; drive, shaft; transmission, individual clutch; speeds, 3; ignition, magneto; cooler, centrifugal pump; gasoline capacity, 15 gals.; frame, steel; steering, screw and nut; brakes, hubs and shaft; weight, 2,400 lbs.; wheel-base, 106 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold equipped with side oil lamps, horn and tools.

$3,500 Austin.

Austin Automobile Co., Grand Rapids, Mich.; side-entrance touring car; seats 5 persons; motor, 4-cyl. upright; horsepower, 50; drive, bevel gear; transmission, planetary; speeds, 3; ignition, jump spark; cooler, water; water capacity, 4 gals.; gasoline, 17 gals.; frame, angle steel; steering, worm and nut; brakes, transmission and rear wheels; weight, 2,400 lbs.; wheel-base, 108 ins.; wheel dia., 36 ins.; tires, 4 1-2 ins.; car sold equipped with full set of tools and five lamps; top extra, $150.



$3,700 Locomobile.

Locomobile Co. of America, Bridgeport, Conn.; side-entrance tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 20-25; drive, double chain, transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, cellular, fan and pump; gasoline capacity, 18 gals.; frame, steel and angle iron; steering, wheel, worm gear; brakes, differential and rear hubs; weight, 2,200 lbs.; wheel-base, 96 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold equipped with 2 acetylene headlights with separate generator, side and rear lamps, horn, storm covers, engine boot, set of tools, spare parts and accessories.

$4,000 to $5,000.

$4,000 Pierce Great Arrow.

George N. Pierce Co., Buffalo, N. Y.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 28-32; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular; water capacity, 5 gals.; gasoline, 18 gals.; frame, steel; steering, wheel; brakes, rear hubs; weight, 2,700 lbs.; wheel-base, 104 ins.; wheel dia., 34 ins.; tires, 4 ins. front, 4 1-2 ins. rear; car sold equipped with 3 oil lamps, 2 gas lamps, horn and tools; top extra, $150 to $250.

$4,000 Royal Tourist.

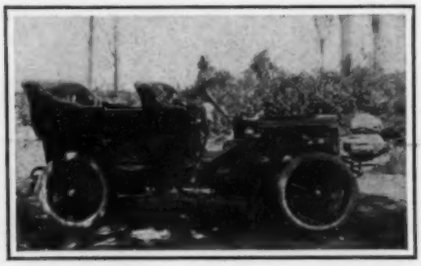
Royal Motor Car Co., Cleveland, O.; limousine; seats 6 persons; motor, 4-cyl. vertical; horsepower, 32-38; drive, shaft; transmission, sliding gear; speeds, 3; ignition, jump spark; water cooled; water capacity, 8 gals.; gasoline, 20 gals.; frame, steel; steering, wheel, worm; brakes, internal; weight, 2,600 lbs.; wheel-base, 108 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.

$4,000 Welch.

Welch Motor Car Co., Detroit and Pontiac, Mich.; side-entrance touring car; seats 7 persons; motor, 4-cyl. vertical; horsepower, 36-38; drive, bevel gear; transmission, sliding gear; speeds, 2; ignition, jump spark; cooler, cellular; water capacity, 3 gals.; gasoline, 16 gals.; frame, steel; steering, wheel; brakes, hubs and shaft; weight, 2,800 lbs.; wheel-base, 114 ins.; wheel dia., 36 ins.; tires, 4 1-2 ins.; sold equipped with oil side lamps, complete set of tools, plain canopy top.

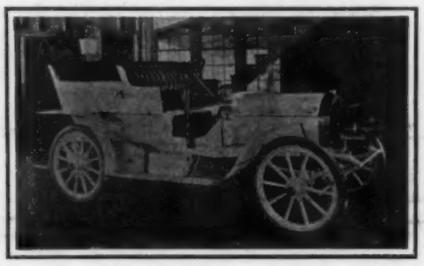
$4,000 Columbia.

Electric Vehicle Co., Hartford, Conn.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 35-40; drive, chain; transmission, sliding gear; speeds, 4; ignition, jump spark; cooler, cellular; water capacity, 7 gals.; gasoline, 24 gals.; frame, steel; steering, wheel; brakes, front and rear sprockets; weight, 3,060 lbs.; wheel-base, 108 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold equipped with lamps and tools.



$4,000 Corbin.

Corbin Motor Vehicle-Corporation, New Britain, Conn.; double side-entrance touring car; seats 7 persons; motor, 4-cyl. vertical; horsepower, 24-28; drive, double chain; transmission, sliding gear; speeds, 3; ignition, jump spark; air-cooled; gasoline capacity, 14 gals.; frame, steel; steering, wheel; brakes, transmission and rear hubs; weight, 2,400 lbs.; wheel-base, 106 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with complete set of lamps and tools.

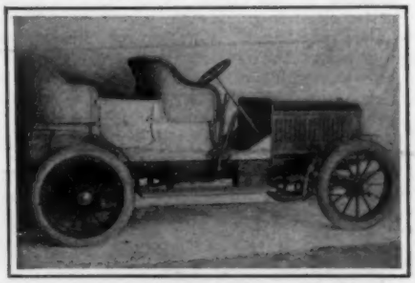


$4,000 Buffum.

H. H. Buffum Co., Abington, Mass.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 28; drive, side chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, cellular, centrifugal pump and fan; water capacity, 5 gals.; gasoline, 16 gals.; frame, steel; steering, worm and sector; brakes, internal expanding; weight, 2,000 lbs.; wheel-base, 105 ins.; wheel dia., 36 ins.; tires, 3 1-2 ins.; car sold equipped with two oil side lights, two gas head lights or dasher searchlight, kit of tools.

$4,000 Apperson Touring Car.

Apperson Bros. Automobile Co., Kokomo, Ind.; side-entrance touring car; seats 7 persons; motor, 4-cyl. vertical; horsepower, 40; drive, double chain or shaft; transmission, sliding gear; speeds, 4; ignition, jump spark; cooler, radiator and fan; water capacity, 6 gals.; gasoline, 23 gals.; frame, steel; steering, wheel, worm and segment; brakes, usual; weight, 2,600 lbs.; wheel-base, 108 ins.; wheel dia., 34 ins. rear, 32 ins. front; tires 815x105 mm. and 875x120 mm.; car sold equipped with lamps, horn and tools; top extra, $150.



$4,000 Ardsley.

Ardsley Motor Car Co., Yonkers, N. Y.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 30-35; drive, shaft and bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, honeycomb; water capacity, 8 gals.; gasoline, 16 gals.; frame, steel; steering, rack and pinion, screw and nut; brakes, shaft and hub; weight, 2,250 lbs.; wheel-base, 100 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with lamp and horn.

$4,000 Thomas Limousine.

E. R. Thomas Motor Co., Buffalo, N. Y.; limousine; seats 7 persons; motor, 4-cyl. vertical; horsepower, 50; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, cellular; water capacity, 3 gals.; gasoline, 19 gals.; frame, steel; steering, wheel; brakes, countershaft and hubs; wheel-base, 110 ins.; wheel dia., 34 ins.; tires, 4 ins. front, 4 1-2 ins. rear.

$4,500 Winton Limousine.

Winton Motor Carriage Co., Cleveland, O.; side-entrance limousine; seats 5 persons; motor, 4-cyl. vertical; horsepower, 40-50; drive, shaft; transmission, individual clutch; speeds, 3; ignition, magneto; cooler, centrifugal pump; gasoline capacity, 15 gals.; frame, steel; steering, screw and nut;

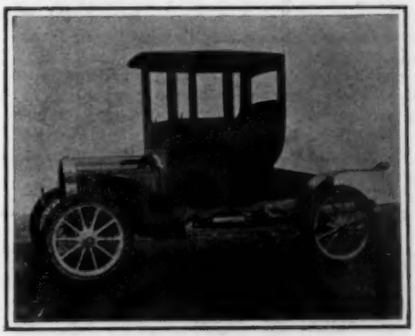
brakes, hubs and shaft; wheel-base, 106 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold equipped with side oil lamps, horn and tools.

$4,000 Stearns.

F. B. Stearns Co., Cleveland, O.; side-entrance touring car; seats 7 persons; motor, 4-cyl. vertical; horsepower, 32-40; drive, double chain; transmission, sliding gear; speeds, 4; ignition, magneto, jump spark; cooler, water, with fan; water capacity, 6 gals.; gasoline, 18 gals.; frame, steel; steering, wheel; brakes, differential and rear hubs; weight, 2,700 lbs.; wheel-base, 118 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold equipped with 2 side lamps, tail lamp, two acetylene headlights; generator, horn.

$4,600 Packard.

Packard Motor Car Co., Detroit, Mich.; limousine; seats 4 persons; motor, 4-cyl. vertical; horsepower, 28; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water, positive circulation; water capacity, 5 gals.; gasoline, 20 gals.; frame, steel; steering, wheel; brakes, rear hubs; weight, 2,550 lbs.; wheel-base, 106 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with oil side and tail lamps, tools, jack, tire outfit, storm aprons, curtains and horn.



$4,100 Packard.

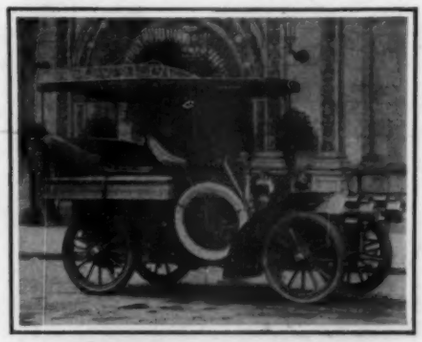
Packard Motor Car Co., Detroit, Mich.; brougham, operated from inside; seats 2 persons; motor, 4-cyl. vertical; horsepower, 28; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water; water capacity, 5 gals.; gasoline, 20 gals.; frame, steel; steering, wheel; brakes, rear wheels; weight, 2,400 lbs.; wheel-base, 106 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with 3 oil lamps, horn, tools, tire repair outfit and jack.

$5,000 Speedway.

Gas Engine & Power Co. & Chas. L. Seabury & Co., Consolidated, New York City; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 24; drive, bevel gear; transmission, sliding gear; speeds, 4; ignition, jump spark; cooler, honeycomb; water capacity, 3 1-2 gals.; gasoline, 18 gals.; frame, steel; steering wheel; brakes, rear end of gear rear hubs; weight, 2,400 lbs.; wheel-base, 105 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold equipped with lamps, horns, tools and repair kit.

$5,000 Matheson.

Matheson Moton Car Co., Ltd., Holyoke, Mass.; side-entrance touring car; seats 7 persons; motor, 4-cyl. vertical; horsepower, 24 and 40; drive, two chains; transmission, individual clutch; speeds, 3; ignition, make and break; cooler, honeycomb; water capacity, 4 gals.; gasoline, 15 gals.; frame, armored wood; steering, wheel; brakes, transmission and rear hubs; weight, 2,800 lbs; wheelbase, 106 ins.; wheel dia., 36 ins.; tires, 4 ins. front, 4 1-2 ins. rear; car sold equipped with lamps, tool set, extra parts, horn and usual accessories; top, extra, $100.



$5,000 S. & M. Simplex.

Smith & Mabley, Inc., New York City; touring car; seats 8 persons; motor, 4-cyl. vertical; horsepower, 30; transmission, sliding gear; speeds, 4; ignition, jump spark; cooler, cellular; gasoline capacity, 26 1-2 gals.; frame, steel; steering, wheel, worm and sector; brakes, differential and hubs; weight, chassis, 2,000 lbs.; wheel-base, 106 ins.; tires, 910x90 m.m. front, 920x120 m.m. rear; chassis sold equipped with tires, 2 gasoline and 3 oil lamps, complete set of tools.

$5,000 Locomobile.

Locomobile Co. of America, Bridgeport, Conn.; side-entrance tonneau; seats 7 persons; motor, 4-cyl. vertical; horsepower, 30-35; drive, double chain; transmission, sliding gear; speeds, 3; ignition, make and break with magneto; cooler, cellular, fan and pump; gasoline capacity, 25 gals.; frame, steel; steering, wheel, with worm gear; brakes, differential and rear wheels; weight, 2,500 lbs.; wheel-base, 106 ins.; wheel dia., 34 ins.; tires, 4 1-2 ins.; car sold equipped with 2 acetylene headlights with separate generator, side and rear lamps, horn, storm covers, engine boot, set of tools, spare parts and accessories.

$6,000 to $11,000.

$6,000 Thomas "Flyer."

E. R. Thomas Motor Co., Buffalo, N. Y.; touring car or racer; as touring car, seats 7; as racer, seats 2 persons; motor, 6-cyl. vertical; horsepower, 60; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, cellular; water capacity, 5 gals.; gasoline, 25 gals.; frame, steel; steering, wheel; brakes, countershaft and hub; weight, as racer, 2,350 lbs.; wheel-base, 120 ins.; wheel dia., 36 ins.; tires, 4 1-2 ins.

$6,000 Peerless.

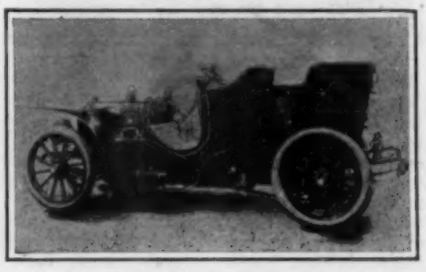
Peerless Motor Car Co., Cleveland, O.; detachable tonneau; seats 5 persons; motor, 4-cyl. vertical; horsepower, 60; drive, bevel gear; transmission, sliding gear; speeds, 4; ignition, jump spark and magneto; water-cooled; water capacity, 4 1-2 gals.; gasoline, 20 gals.; frame, steel; steering, wheel; brakes, rear wheels; weight, 2,875 lbs.; wheel-base, 102 ins.; wheel dia., 36 ins.; tires, 4 1-2 ins. rear, 4 ins. front; top extra, $250.

$6,000 Panhard & Levassor.

American Branch of Panhard & Levassor of Paris; side-entrance double phaeton; seats 5 persons; motor, 4-cyl. vertical; horsepower, 15; drive, chain; transmission, sliding gear; speeds, 4; ignition, jump spark with magneto and batteries; cooler, honeycomb; water capacity, 6 gals.; gasoline, 12 gals.; frame, armored wood; steering, worm and sector; brakes, differential and rear hubs; weight, 2,600 lbs.; wheel-base, 102 ins.; tires, 910x90 m.m. and 910x90 m.m.; top extra, $250.

$6,500 Benz-Parsifal.

Mead Cycle Co., Chicago, Ill.; touring car; seats 7 persons; motor, 4-cyl. vertical; horsepower, 22; drive, shaft; transmission, sliding gear; speeds, 4; ignition, magneto; cooler, honeycomb radiator; water capacity, for 1,000 miles; gasoline capacity, for 300 miles; frame, armored wood; steering, wheel, with worm gear and sector; brakes, driving shaft and wheels; weight, 2,200 lbs.; wheel-base, 1,440 m.m.; tires, 880x120 m.m.; sold equipped with American hood and usual accessories.



$7,500 American Mercedes.

Daimler Mfg. Co., Long Island City, N. Y.; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 40-45; drive, chain; transmission, sliding gear; speeds, 4; ignition, make-and-break, with Simms-Bosch magneto; cooler, honeycomb and flywheel fan; water capacity, 3 1-2 gals.; gasoline, 24 gals.; frame, steel, steering, screw and nut; brakes, differential gear shaft, rear hubs; wheel-base, 3050 mm.; tires, 910x100 mm. front, 920x120 mm. rear; car sold equipped with tool kit, tire kit, horn, 2 oil and 2 gas lights, tail light, assortment of spare parts.

$7,000 Panhard & Levassor.

American Branch of Panhard & Levassor of Paris; side-entrance phaeton; seats 5 persons; motor, 4-cyl. vertical; horsepower, 18; drive, chain; transmission, sliding gears; speeds, 4; ignition, jump spark with magneto and batteries; cooler, honeycomb; water capacity, 6 gals.; gasoline, 15 gals.; frame, armored wood; steering, worm and sector; brakes, differential and rear hubs; weight, 2,800 lbs.; wheel-base, 104 ins.; tires, 870x90 mm. and 920x120 mm.; top extra, $250.

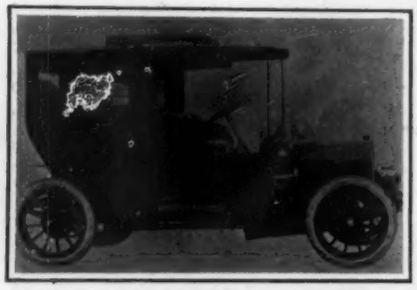
$7,500 Locomobile.

Locomobile Co. of America, Bridgeport, Conn.; side-entrance tonneau; seats 8 persons; motor, 4-cyl. vertical; horsepower, 40-45; drive, double chain; transmission, sliding gear; speeds, 4; ignition, make and break with magneto; cooler, cellular, fan

and pump; gasoline capacity, 25 gals.; frame, steel; steering, wheel, worm gear; brakes, differential and rear wheels; weight, 2,800 lbs.; wheel-base, 110 ins.; wheel dia., 36 ins.; tires, 5 ins.; car sold equipped with 2 acetylene headlights with separate generators, side and rear lamps, horn, storm covers, engine boot, set of tools, spare parts and accessories.

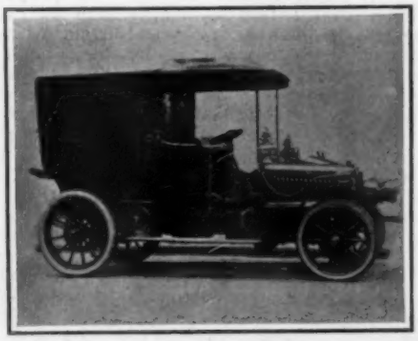
$8,000 De Dietrich.

American de Dietrich Motor Car Co., New York City; coupé limousine; seats 7 persons; motor, 4-cyl. vertical; horsepower, 20; drive, chain; transmission, sliding gear; speeds, 4; ignition, magneto, make-and-break; cooler, tubular; water capacity, 8 gals.; gasoline, 16 gals.; frame, channel steel; steering, wheel; brakes, differential and rear hubs; weight, 2,800 lbs.; wheel-base, 101 ins.; wheel dia., 36 ins.; tires, 910x90 mm. and 920x120 mm.; car sold equipped with lamps, tools, extra parts and horn.



$8,000 Apperson Bros. Limousine.

Apperson Bros. Automobile Co., Kokomo, Ind.; side-entrance limousine; seats 7 persons; motor, 4-cyl. vertical; horsepower, 40; drive, double chain or shaft, optional; transmission, sliding gear; speeds, 4; ignition, jump spark; cooler, radiator and fan; water capacity, 6 gals.; gasoline, 23 gals.; frame, steel; steering, wheel with worm segment; brakes, usual; weight, 2,700 lbs.; wheel-base, 110 ins.; wheel dia., 32 ins. front, 34 ins., rear; tires, 815x105 mm. and 875x120 mm.; car sold equipped with lamps, horn, tools, electric lights, batteries.

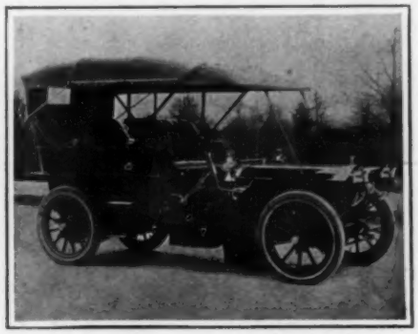


$8,400 Panhard & Levassor.

American Branch of Panhard & Levassor, of Paris; side-entrance phaeton; seats 5 persons; motor, 4-cyl. vertical; horsepower, 24; drive, chain; transmission, sliding gear; speeds, 4; ignition, jump spark with magneto and batteries; cooler, honeycomb; water capacity, 6 gals.; gasoline, 18 gals.; frame, armored wood; steering, worm and sector; brakes, differential and rear hubs; weight, 2,850 lbs.; wheel-base, 108 ins.; tires, 870x90 mm, and 920x120 mm.; top extra, $250.

$8,500 De Dietrich.

American de Dietrich Motor Car Co., New York City; side-entrance touring car; seats 5 persons; motor, 4-cyl. vertical; horsepower, 30; drive, chain; transmission, sliding gear; speeds, 4; ignition, magneto, make-and-break; mechanical inlet and exhaust valves; cooler, tubular; water capacity, 8 gals.; gasoline, 16 gals.; frame, steel; steering, wheel; brakes, differential and rear hubs; weight, 2,700 lbs.; wheel-base, 101 ins.; wheel dia., 36 ins.; tires, 910x90 mm. and 920x120 mm.; car sold equipped with basket, lamps, tools and extra parts; top extra, $500.



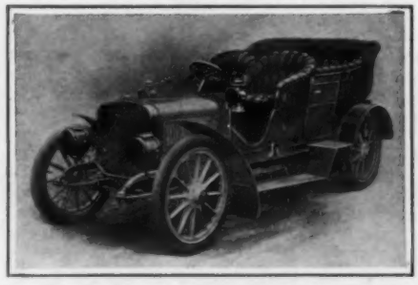
$11,000 Napier.

Napier Motor Co., of America, Boston, Mass.; side-entrance tonneau; seats 5 or 7 persons; motor, 6-cyl. vertical; horsepower, 30; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water; water capacity, 500 miles; gasoline. 200 miles; frame, steel; steering, wheel; brakes, rear wheels and driving shaft; weight, 2,600 lbs.; wheel-base, 110 ins.; wheel dia., 36 ins.; tires, 920 x 120, and 910 x 90; car sold equipped with cape cart hood and necessary tools.

Prices not Given.

Pope-Tribune Model D.

Pope Mfg. Co., Eastern Dept., Hartford, Conn.; side-entrance, light touring car; seats 5 persons; motor, 2-cyl. vertical tandem; horsepower, 12; drive, shaft with bevel gears; transmission, individual clutch; speeds, 3; ignition, jump spark; cooler, tubular, rotary pump; gasoline capacity, 8 gals.; frame, angle steel reinforced by oak sills; steering, wheel; brakes, rear wheel and transmission; wheel-base, 82 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.



Lozier Motor Car.

Lozier Motor Co., New York City; seats 5 persons; motor, 4-cyl. vertical; horsepower, 30-35; drive, double side chain; transmission, sliding gear; speeds, 3; ignition, high tension magneto or induction coil and storage batteries; cooler, cellular with fan, gear driven centrifugal pump; water capacity, 6 gals.; gasoline, 19 gals.; frame, steel; steering, wheel; brakes, differential and rear wheel; weight, 2,500 ibs.; wheel-base, 115 1-2 ins.; wheel dia., 36 ins.; tires, 4 1-2 ins.

Pope-Hartford.

Pope Mfg. Co., Eastern Dept., Hartford, Conn.; side-entrance light touring car; seats 5 persons; motor, 2-cyl. horizontal opposed; drive, shaft with bevel gears; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular, rotary pump; gasoline capacity, 11 1-2 gals.; frame, armored oak; steering, worm and sector; brakes, rear wheels and transmission shaft; wheel-base, 88 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.

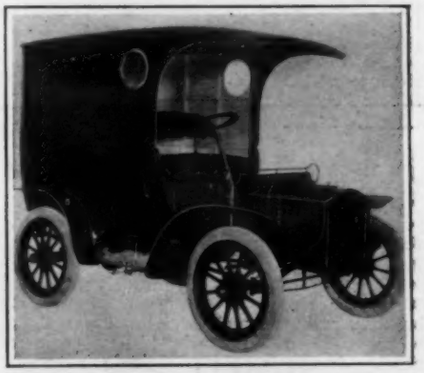
Packard Special.

Packard Motor Car Co., Detroit, Mich.; two-passenger car; motor, 4-cyl. vertical; horsepower, 28; drive, bevel gear; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, water; water capacity, 5 1-2 gals.; gasoline, 20 gals.; frame, steel; steering, wheel; brakes, rear hubs; weight, 2,200 lbs.; wheel-base, 106 ins.; wheel dia., 34 ins.; tires, 4 ins.; car sold equipped with oil side and tail lamps, horn, jack, storm aprons, tools and tire repair outfit.

Commercial Vehicles.

$1,600 Logan.

Logan Construction Co., Chillicothe, O.; delivery truck; motor, 2-cyl.; horizontal opposed; horsepower, 20; drive, chain; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, tubular, with copper disc; water capacity, 7 gals.; gasoline, 11 gals.; frame, angle steel; steering, wheel with rack and pinion; brakes, —; weight, 1,700 lbs.; wheel-base, 90 ins.; wheel dia., 30 ins.; tires, solid.



$950 Cadillac.

Cadillac Automobile Co., Detroit, Mich.; delivery wagon; carrying capacity, 400 to 60 lbs.; motor, single-cyl. horizontal; horsepower, 9-10; drive, chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, tubular; steering, wheel; weight, 1,400 lbs.; wheel-base, 76 ins.; wheel dia., 30 ins.; tires, 3 1-2 ins.

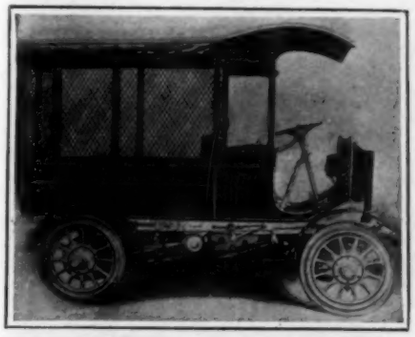
Studebaker Electric.

Studebaker Automobile Co., South Bend, Ind.; electric piano or furniture wagon; motors, 2, 80 volts, 20 amperes; battery, 40 cells; weight capacity, 2,500 lbs.; steering, wheel; wheel-base, 94 ins.; wheel dia., 36 ins.; tires, 3 1-2 ins. solid; sold equipped with standard express wagon top, side curtains, set of tools, charging plug and 15 ft. cable.

V. E. C. Delivery Wagon.

Vehicle Equipment Co., New York City; delivery wagon with closed body; carrying capacity, 3,000 lbs.; horsepower, 3 1-2; drive, single reduction gear; transmission, gear;

speeds, 4; frame, structural steel; steering, wheel; brakes, internal expanding, electric; weight, 5,500 lbs.; wheel-base, 94 ins.; wheel dia., 36 ins.; tires, 3 1-2 ins. front, 4 ins. rear.



$2,000 Oldsmobile.

Olds Motor Works, Detroit, Mich.; heavy delivery car; seats 2 persons; carrying capacity, 87 cubic. ft.; motor, 2-cyl. vertical; horsepower, 16; drive, double chain; transmission, planetary; speeds, 2; ignition, jump spark; cooler, disc radiator; water capacity, 10 gals.; gasoline, 11 gals.; frame, steel; steering, wheel; brakes, transmission and hub; wheel-base, 83 ins.; wheel dia., 30 ins.; tires, 4 1-2 ins. solid.

$2,000 Springer Delivery

Springer Motor Vehicle Co., New York City; delivery wagon; capacity, 2,000 lbs.; motor, 2-cyl. horizontal; horsepower, 12-14; drive, Renold chain and two side chains; transmission, sliding gear; speeds, 3; ignition, jump spark; cooler, copper, tubular; water capacity, 6 gals.; gasoline capacity, 25 gals.; frame, angle iron; steering, wheel; brakes, differential and hubs; weight, 2,200 lbs.; wheel-base, 90 ins.; wheel dia., 30 front, 36 rear ins.; tires, front 3 ins., rear 4 ins.

$2,800 Knox Patrol Wagon.

Knox Automobile Co., Springfield, Mass.; patrol wagon; seats 10 persons; motor, 2-cyl. horizontal; horsepower, 14-16; drive, single chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; frame, angle steel; steering, lever with Lemp check; hubs,; weight, 3,200 lbs.; wheel-base, 8 8ins.; wheel dia., 32 ins.; tires, 3 1-2 ins.

$2,500 Commercial.

Knox Automobile Co., Springfield, Mass.; 2-cyl. horizontal; horsepower, 16-18; drive, single chain; transmission, planetary; speeds, 2; ignition, jump spark from dry cells; air-cooled; gasoline capacity, 14 gals.; frame, angle steel; steering, irreversible wheel or lever; brakes, hubs; weight, 3,400 lbs.; wheel-base, 96 ins.; wheel dia., 32 ins.; tires, 32 x 3-12 ins.; top extra, $50.

$2,000 Commercial Delivery.

Knox Automobile Co., Springfield, Mass.; delivery wagon; carrying capacity, 1,500 lbs.; motor, single-cyl. horizontal; horsepower, 8-10; drive, single chain; transmission, planetary; speeds, 2; ignition, jump spark; air-cooled; gasoline capacity, 12 gals.; frame, angle steel; steering, lever with Lemp check; brakes, hubs; weight, 2,500 lbs.; wheel-base, 78 ins.; wheel dia., 32 ins.; tires, 32 x 3 1-2 ins.

V. E. C. Milk Truck.

Vehicle Equipment Co., New York City; 5-ton milk truck; horsepower, 5; drive, single reduction gear; transmission, gear; speeds, 4; frame, structural steel; steering, wheel; brakes, internal expanding, electric; weight, 9,000 lbs.; wheel-base, 107 ins.; wheel dia., 36 ins.; tires, 7 ins.

V. E. C. Furniture Truck.

Vehicle Equipment Co., New York City; open furniture truck; carrying capacity, 4,000 lbs.; horsepower, 4; drive, single reduction gear; transmission, gear; speeds, 4; frame, structural steel; steering, wheel; brakes, internal expanding, electric; weight, 7,900 lbs.; wheel-base, 116 ins.; wheel dia., 36 ins.; tires, 5 ins.

V. E. C. Hoist Truck.

Vehicle Equipment Co., New York City; open stake truck; carrying capacity, 10,000 lbs.; horsepower, 5; drive, single reduction gear; transmission, gear; frame, structural steel; steering, wheel; brakes, internal expanding, electric; weight, 10,500 lbs.; wheel-base, 117 ins.; wheel dia., 36 ins.; tires, 7 ins.

Parts and Accessories to Be Exhibited.

Adam Cook's Sons.—"Albany" grease.

America Co.—America lightning automobile wrench.

American Ball Bearing Co.—Front and rear axles for touring cars, runabouts and delivery wagons.

American Coil Co.—Jump spark plugs and coils; pocket ammeters; lock switches; encased dry batteries; dynamos; combination coil and plug (marine); automatic battery case.

American Electrical Nov. & Mfg. Co.—Ever-ready dry batteries for gasoline ignition; miniature battery and storage incandescent lamps; portable electric lamps for safety purposes; electric automobile lamps.

American Lubricator Co.—Automatic multiple sight feed lubricators; cylinder lubricators; steering standards; oil cups; grease cups.

American Motor Co.—One three-horsepower motorcycle.

American Roller Bearing Co.—Standard front and rear axles of various dimensions; roller bearing hubs and wheels; roller bearings for transmissions and countershafts; bevel gear drive axles; chain drive axles.

Autocar Equipment Co.—"Continental" automobile and marine 2 and 4 cylinder motors; transmission gears; clutches; carbureters; accessories.

Autocoil Co.—Spark coils.

Automobile Supply Co.—P. D. and Alpha French spark plugs; Alpha French spark coils; horns; imported goggles; spark coils (Induction Coil Co.); rotary and gear pumps; tire pumps; mufflers; transmissions; ammeters; voltmeters; automobile clocks.

Auto Supply Co.—Lamps; horns; goggles; transmission gears; automobile supplies.

Baldwin Chain & Mfg. Co.—Auto chains; mufflers; sprockets.

B. F. Goodrich Co.—Full line of tires for automobiles and motorcycles.

Breeze Motor Mfg. Co.—Tourist motorcycle, with tandem attachment; Breeze automatic carbureter; Breeze gasoline straining funnel; 2 horsepower portable air-cooled gasoline engine on aluminum base with coil and batteries in base.

Bridgeport Deoxidized Bronze & Metal Co.—Aluminum and bronze castings for automobiles and power boats.

Brennan Mfg. Co.—Standard horizontal gasoline motors (5 models); four-cylinder horizontal motor; four-cylinder vertical motor; sliding gear transmission mounted on frame; planetary or individual clutch gear mounted on truss frame; complete chassis; carbureters; mufflers.

Brown-Lipe Gear Co.—Equalizing and steering gears.

Brown & Sharpe Mfg. Co.—Transmission gears; driving bevel gears; compensating gears; hardened gears; valve gears; bronze circulating pumps; water-cooled cylinder castings; air-cooled cylinder castings; gray iron castings.

Bryne-Kingston & Co.—Carbureters, mufflers; coils; pumps; spark plugs; wheels; accessories.

Carlyle Johnson Machine Co.—Marine reverse gears; friction clutches; friction reverse clutches.

Chas. F. Lighthouse & Co.—Auto license numbers.

Charles H. Metz.—Motorcycles, and parts showing construction.

Chicago Rawhide Mfg. Co.—Rawhide tire-sleeves; gears and pinions; bearing metal; rawhide and oak leather belting.

Columbia Lubricants Co. of New York.—Oils and greases for automobile and marine motors; metal polish.

Concentrated Acetylene Co.—"Prest-O-Lite" gas tanks for acetylene lamps.

Constant Spark Plug Co.—Spark plugs.

Continental Caoutchouc Co.—Continental clincher tires and tire accessories.

C. P. Kimball & Co.—Limousine bodies; open bodies with canopy tops.

Dayton Electrical Mfg. Co.—The Apple line of acid type storage batteries; electric igniting and lighting outfits for automobiles; jump spark coils; contact coils; spark plugs; primary timing devices; hand and automatic; primary and secondary timing devices, hand and automatic; instruments and switchboards for electric igniting and lighting systems.

Detroit Steel Products Co.—Automobile springs.

Diamond Rubber Co.—Full line of tires; rubber-covered staybolts; tire tools.

Dow Portable Electric Co.—High-tension spark coils; spark plugs; ammeters; commutators; switches; chain jacks.

E. B. Meyrowitz.—Automobile goggles and pocket lamps.

Excelsior Supply Co.—Automobile

tires; spark plugs; tire sleeves; lamps; coils; generators; horns; goggles; caps, and a full line of accessories.

Federal Mfg. Co.—Diamond chains for transmission of power.

Firestone Tire & Rubber Co.—Firestone side-wire tires for commercial and pleasure vehicles; Standard Firestone endless rims.

Fisk Rubber Co.—Automobile tires; vulcanizers.

F. W. Ofeldt & Sons.—Water tube boiler; blue flame kerosene burner; automatic water feed regulator; automatic fuel regulator.

G & J Tire Co.—G & J Thread fabric tires.

Gleason-Peters Air Pump Co.—Galvanized iron and drawn steel air tanks for garages; tire pumps; power air pumps; lever and bench pumps; Duplex oscillating cylinder pump; yacht whistles; French and American tire connections; foot horns; heavy air hose; syringe oilers in various sizes.

Goodyear Tire & Rubber Co.—Full line of tires for automobiles.

Gray & Davis.—Searchlights; headlights; oil side and rear lights.

Hartford Rubber Works Co.—Full line of tires, including Hartford Perfected Dunlop and Clincher; Turner Solid Tires; demonstrations on artillery wheels, showing ease of attachment.

Hartford Suspension Co.—Shock absorbers.

Hendee Mfg. Co.—"Indian" motorcycles; fore-carriages; Hedstrom spark plugs.

Herz & Co.—Herz timers; marine cable; ignition cable; primary and duplex wire; battery connections; detachable cable terminals; patent groove terminals; Bougie Herz plugs; Herz ignition battery; Hennebutte carbureter; French gaskets; Bougie Mercedes plug; Kolner (German) accumulator; Guenet coils (French); Herz safety switch.

Hess-Bright Mfg. Co.—Radial ball bearings; ball bearing steps, and parts showing these applied.

H. F. Parker.—The Parker lock switch, connected with electric lamps to show operation.

Hjorth & Co., William.—Lightning auto wrenches; combination pliers; empire pipe wrenches.

Imperial Wheel Co.—Wood automobile wheels.

International A. & V. Tire Co.—Pneumatic automobile tires, clincher and single tube.

Ironclad Mfg. Co.—Barrels and drums for storing gasoline; pump and fittings.

Jersey Brake Co.—Automobile jacks.

Joseph W. Jones.—Jones speedometers; odometers; speedometer-odometers.

Knoblock-Heideman Mfg. Co.—Dynamos, magnetos; jump spark coils; spark plugs.

Lunkenheimer Co.—Regrinding valves; lubricators; oil cups; generator valves; pop valves; multiple-feed oilers. Mechanical lubricator in operation.

L. Angiulli.—"Phare Angelicus" autolamps and generators.

Manufacturers' Foundry Co.—Cylinder castings; pistons; cylinder heads; exhaust pipes.

McGiehan Odometer & Mfg. Co.—Dashboard odometers.

Merrill-Stevens Mfg. Co.—Standard automobile jacks.

Midgley Mfg. Co.—Pressed sheet steel wheels, together with samples showing construction.

Miller, Charles E.—Automobile horns; goggles; leather clothing; Brampton self-hardening steel chain; voltmeters; amperemeters; De Dion spark plugs; Miller mica spark plugs; globe polish; R. & C. magnetic indicator; Herschel-Spellman 4-cylinder motors; Lobee pumps; Brown-Lipe steering and equalizing gears; transmission gears; axles; wheels; Staylit lamps, oil and gas; Royal & Raleigh automobile watches; velograph; Walkover tire sleeve; Security tire case; Miller manometer; steam and air pumps; storm aprons; water-proof and dustproof covers; inner tube bags; tool bags.

Myers & Alexander.—German reed motor car baskets and hampers; "Everdry" baskets and hampers.

National Carbon Co.—Ignition batteries; "Columbia" dry batteries; multiplex batteries; Autocells; spark coils.

National Car Wheel Co.—Complete line of aluminum and bronze castings for automobiles.

New York & New Jersey Lubricants Co.—Non-fluid oils for automobile use; N. F. O. automobile lubricant gun, 1905 model.

New York Edison Co.—An electric sign, suggesting the availability of Edison service for electric automobiles.

Oliver Mfg. Co.—Peerless automobile jacks.

Pantasote Co.—Water and oilproof upholstery materials for seats; mackintoshed materials for canopy and cape tops; side curtains; boots; lap robes; window shade materials for closed-top cars.

Phineas Jones & Co.—Automobile wheels, felloes, spokes

Pittsfield Spark Coil Co.—Jewel mica spark plugs; Pittsfield spark coils; Pittsfield lock switches; Jewel marine plugs; high tension distributors; terminals.

Pneumatic Tire Protector Co.—Life preservers; mechanical horn-blower.

Post & Lester Co.—Automobile horns; goggles; ammeters; volt-meters; combination volt-ammeter; Royal hampers; "Neverskip" plugs; Imperial and Regal clocks.

R. E. Deitz Co.—Oil motor lamps; acetylene gas lamps and generators; mirror lens searchlights.

R. E. Hardy Co.—"Sta-Rite" ignition plugs; gasoline gauges; spark coils; circuit breakers and accessories.

Remy Electric Co.—Magneto ignition apparatus for motor cars and explosive motors of all kinds.

Rose Mfg. Co.—"Neverout" searchlights; headlights; forced draught side and tail oil lamps; hydro-pneumatic system gas generators.

Saks & Co.—Automobile garments of fur, leather, rubber and cloth, for men and women; caps, gloves, boots, baskets, lamps, horns, clocks, etc.

Scandinavian Fur & Leather Co.—Fur and leather clothing for men and women; goggles; veils; dusters; novelties.

Scoville & Peck Co.—Searchlights; headlights; oil side and tail lamps; automatic gas generators for touring cars.

Shelby Steel Tube Co.—Cold drawn seamless tube; seamless axle tubing.

Springfield Metal Body Co.—Springfield tops; aluminum body and aluminum fenders.

Standard Carriage Lamp Co.—Searchlights; oil lamps; acetylene gas headlights; acetylene gas generators; electric auto lamps; brazing compound.

Standard Welding Co.—Seamless steel rims; steering yokes; arms and extensions to steering knuckles; yokes; cam shafts; tube for admission, controlling and steering levers; hub stampings; step pad shanks; spring hangers; tubing for transmission shafts, universal joint shafts, tie rods and truss rods; part forgings for body brackets; special electric welding.

Timken Roller Bearing Axle Co.—Bevel gear drive axles; chain drive axles; dead rear axles; steering knuckles; front axles complete; cups and cones; artillery wheels; channel rims.

Tokheim Mfg. Co.—Dome automobile gasoline outfits; long-distance gasoline safety storing, pumping and measuring system.

T. J. Cooper.—Fear-Naught punctureless and non-collapsible pneumatic tires.

T. P. Howell & Co.—Automobile trimming leather in various colors and finishes.

Trebert Auto & Marine Motor Co.—Auto and marine engines and carbureters.

United Electrical Mfg. Co.—"Crescent" dry batteries; "Crescent" spark plugs; electrical novelties; jump spark coils; make and break coils; brass contacts and terminals.

Upton Motor Co.—One touring car; one transmission gear.

Utility Co.—"Gre-Solvent" for grimy hands; "Squeal-Skin" tire bands; "Utility" mica plugs; multiple switch; raw silk machine and woodwork wipers.

Valentine & Co.—Varnishes; colors.

Veeder Mfg. Co.—Odometers; cyclometers; ratchet counters; revolution counters; tachometers; castings; tachometer testing machine; dashboard of Pierce "Great Arrow" automobile with odometer and tachometer; automobile wheels fitted with odometers and propelled by electric motors.

Vesta Accumulator Co.—New 1905 Vesta battery; portable storage battery; electric automobile batteries; headlights, lamps and lanterns.

Warner Gear Co.—Differential gears; steering wheels, solid and "double tilt"; transmission gears; stearing gears.

Warner Instrument Co.—Cut-meters; auto-meters, shown in use.

W. H. Brown.—Dust guards; traction tires; tire, Dryden patent, solid rubber, notched tread, bolted to rim.

Wheeler Mfg. Co.—Canopy Cape and extension tops; hampers; brass trimmings; dos-a-dos seats; automobile accessories of all kinds.

Whiteley Steel Co.—"Crown Steel" castings.

Whitlock Coil Pipe Co.—Cellular coolers; bent tubing.

Whitney Mfg. Co.—Roller chains; block chains; "Wizard" chains for automobile main drive; motorcycles; bicycles; starting devices; circulating pumps; cooling fans; magnetos; keys and cutters for the Woodruff patent system of keying; "Presto" chucks; collets and friction tapping devices.

William Cramp & Sons' Ship & Engine Building Co.—Parsons' Manganese bronze and special bearing metal castings; Parsons' white brass ingots; Manganese bronze ingots, and rolled Manganese bronze rods.

Wray Pump & Register Co.—Air pumps; hose coupling for automobile tires.

W. D. Custead.—Variable speed and power transmission device shown in operation.

W. J. Duane & Co.—Tourist and London auto tops; tire case covers; automobile covers.

W. J. Kells Mfg. Co.—Honeycomb water coolers; coil radiators; hoods; tanks; mudguards; mufflers.

20th Century Mfg. Co.—Automobile lamps; horns; oil guns; general accessories.

20th Century Mfg. Co.—Lamps; horns; oilers; spark plugs.

Baker & Thacher.—Speedometer, registering speed, total mileage and trip mileage.

Beckley-Ralston Co.—Complete line of automobile sundries and accessories.

Cleveland Car Specialty Co.—Pressed steel frames and pressed steel parts.

Duff Mfg. Co.—Barrett automobile jacks.

Harry A. Allers & Co.—Solarine metal polish.

Schwarz Wheel Co.—Automobile wheels.

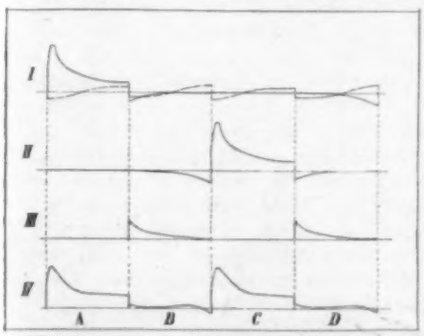
Vacuum Oil Co.—Vacuum Mobiloils; Mobilubricant (grease); Vacuum motor boat oil.

NO FREAKS THERE.

Chicago Show in February Will Mark Passing of Experimental Period.

Special Correspondence.

CHICAGO, Jan. 9.—Electric signs will mark the exhibit of almost every manufacturer and dealer in the coming Chicago show



DAIMLER COMPOUND ENGINE DIAGRAM.

which will open February 4. The orders that have been given indicate the most brilliant display ever seen in the Coliseum. It is expected that this year's show will be remarkable for one feature—the passing of the "freak" things. The manufacture of the automobile has developed, according to the manufacturers and dealers, into a settled business. With the passing of the novelties has come a better understanding of the possibilities of the machine. Men come to buy with intelligent ideas of the values of various mechanisms. While there has been a substantial growth in the building of cars, the Chicago show will have no startling introductions to offer.

Of the foreign visitors, Achille Fournier will be among the more prominent. He will bring five cars in addition to the big racing machine which he will use during his visit in America at some of the big meetings. Paul Sartori and William Wallace, contestants in the race for the Vanderbilt cup, and Frank Kulick will also be visitors at the show.

Harry Hamlin, of Chicago, has cabled from Paris that he has purchased the latest pattern of the Panhard machine, which will be shipped at once to Chicago. A duplicate will be exhibited at the coming show.

High-powered pacing motorcycles are rapidly losing favor in France.

Daimler Experimental Motor.

Special Correspondence.

BERLIN, Dec. 18.—The statement was recently made in *The Car* that the Daimler factory was about to build a three-cylinder motor, but not of the Panhard-Levassor type, the central cylinder being the larger and using the exhaust from the smaller side cylinders. The report was repeated by an Austrian automobile journal, but was very emphatically denied by Mr. Jellinek, the head of the Daimler works. In spite of this denial it is possible, on authoritative information, to confirm the report to the extent that an experimental motor of this description has been built and tested with success, in spite of some serious difficulties encountered. The motor worked satisfactorily and showed a notable economy of fuel, but for business reasons it will not be built—for the present, at least—and the experiments have been discontinued.

The accompanying diagrams are merely typical, and do not show the exact details; apart from the great secrecy which has been maintained, the motor has been greatly modified in the course of the experiments. While the general idea is not new, it is interesting to know that it has the serious endorsement of such an authority as Mr. Maybach, the noted chief engineer of the Daimler works.

The operation of the side cylinders follows the ordinary four-cycle sequence, the cranks being coordinated and not opposed. The exhaust gases from these cylinders, instead of passing direct to a muffler, are conducted to the large central cylinder. Shortly before the piston of cylinder 2 reaches its lowest point on the explosion stroke, the exhaust valve 8 is opened and the exhaust gases pass directly to the large central cylinder, and by their expansion force it downward, being exhausted in turn from 3 at the end of its stroke by the valve in the pipe 13, operated from the crankshaft by the cam 9, the rod 10, and the lever 11. As it sometimes occurs, as the result of a poor mixture or other causes, that there is a slight vacuum in the large cylinder, a valve 12 is provided to admit a supply of air from the outside.

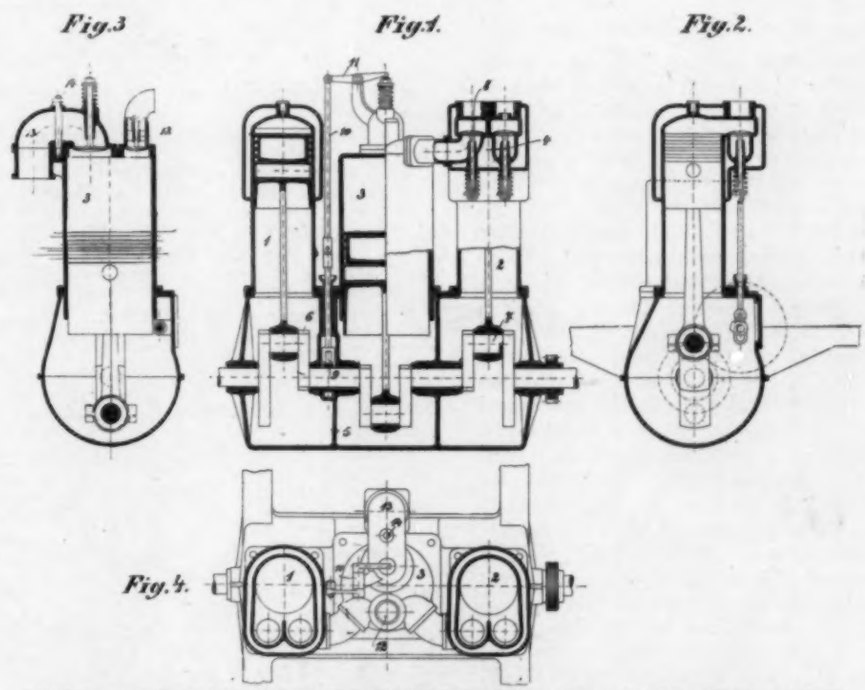
The practical operation of the motor is shown by the diagrams; I showing the pressure in cylinder 1, II the pressures in cylinder 2, and III the pressures in cylinder 3 for each cycle. The lower diagram, IV, shows the net effective pressure in each cylinder during the complete cycle. The broken lines show the compression. Diagram IV shows that the power produced in the expansion cylinder is actually greater than that lost in back pressure in the other two cylinders. As an offset to the increased complication and cost, there may be claimed for the arrangement the following advantages:

1. The balance is quite as good as in the four-cylinder motor, and vibration is reduced to a minimum.

2. The fuel consumption is very small; no more than that of a two-cylinder motor, while the power is more than 50 per cent. greater.

3. The regularity of operation is nearly equal to the four-cylinder motor.

4. The exhaust is disposed of without noise, and with a gain instead of a loss of power in silencing.



DRAWINGS ILLUSTRATING COMPOUND GAS ENGINE BUILT BY GERMAN DAIMLER COMPANY.
Figure 1.—Elevation and partial section of motor. Figure 2.—Vertical transverse section through end cylinders. Figure 3.—Vertical transverse section through middle cylinder. Figure 4.—Plan and section of end cylinder valve chests.

Madison Square Garden Show.

New York's Big Hall Taxed to Utmost to Accommodate 250 Exhibitors—Reduced Rates to Week's Annual Meetings.

NEW YORK'S fifth annual automobile show opens Saturday evening, January 14, with Madison Square Garden taxed to its utmost to contain the vast collection of automobiles, complete and in the chassis, parts and accessories and, in fact, everything "touchin' on and appertainin' to" the motor vehicle. Everything possible has been done to increase the amount of space available, and many a corner never before utilized for exhibition purposes has been pressed into use to accommodate many an exhibitor who would otherwise have been left out. Notwithstanding all that has been done, however, not all who applied have been given space, and, almost without exception, the larger and more important exhibitors were allowed only a part of the space for which they asked. Big as the show is, it is agreed by the management that there would be no difficulty in making it three times as large with the material available, and the thought "What will we do next year?" frequently finds expression.

All told, there are nearly 100 exhibitors of complete automobiles who will show a total of between 250 and 300 cars, in addition to the demonstration cars with which the building will be surrounded. Manufacturers of and agents for automobile parts, accessories and supplies bring the total number of exhibitors up to almost 250.

The Week's Banquets and Meetings.

Show week is naturally an appropriate time for all sorts of gatherings of those interested in the automobile, and the 1905 show week will not depart from the precedents of the past. Sunday evening, January 15, the New York Motor Club gives a dinner at the Hotel Astor, at which Sir Thomas R. Dewar, a member of the British parliament and an enthusiastic automobilist, will be the guest of honor. Monday, January 16, the American Automobile Association holds its annual meeting at the Hotel Seville, while the annual banquet of that organization takes place in the evening of the same day at the Waldorf-Astoria. The third annual banquet of the Hyatt Roller Bearing Co. is scheduled for Wednesday evening, at Bretton Hall. The National Association of Automobile Manufacturers, which usually gives a dinner at show time, holds a smoker and vaudeville entertainment on Friday evening, the 20th. Last, but far from least, the Automobile Club of America will give its annual dinner at the Waldorf-Astoria on Saturday evening, January 21, as a wind-up of show week.

Arrangements have been made with the railroad companies whereby the members of the American Automobile Association and the American Motor League are enabled to secure reduced rates to and from New York during show week, provided a sufficient number of *bona fide* members purchase tickets under the regulations governing this matter. These regulations are of importance and must be strictly complied with in order to secure the advantages of membership, and may be secured in printed form from C. H. Gillette, secretary of the A. A. A., at 31 West Forty-second street, New York, and Frank A. Egan, secretary of the A. M. L., Vanderbilt Building, New York.

Reduced Rate Arrangement.

Considerable dissatisfaction was caused last year and a great deal of injustice was done to officers of the American Motor League by reason of a misunderstanding of the railroad arrangements in connection with the national shows. The Trunk Line Association, to which application must be made for reduced rate to New York, has no power to grant a reduced rate for any commercial enterprise. The Central Passenger Association, of Chicago, is more liberal and has been in the habit of granting a reduced rate to practically all visitors to the Chicago show. The Central, however, covers only a part of the western territory; the remainder is controlled by the Western Passenger Association which, like the Trunk Line Association, refuses to grant a rate to any commercial enterprise.

The American Automobile Association and the American Motor League have been in the habit of holding their annual conventions at the same time as the shows. Last year both of them applied for reduced rates, which were duly granted, but under the conditions of the concession, it was necessary for the officers to certify that the person by whom certificates were presented were members of their respective organizations.

This announcement was made public a long time ahead of the show, but evidently was not generally understood, the result being a great deal of dissatisfaction on the part of those who were required to become members before their certificates could be signed.

This year the arrangement is practically the same, except that the Trunk Line Association will be more strict than last year. A reduced rate has been granted to New York to both the American Motor League and the American Automobile Association, and to Chicago to the league only. The Trunk Line Association has notified both organizations that they will be required to deposit, on January 13, a complete list of their members so that there may be no question about who are or are not entitled to the rate. The officers of both organizations at New York, and of the American Motor League at Chicago, will refuse to indorse any certificates unless the person who presents it is a *bona fide* member.

Complete List of Exhibitors.

Main Floor.

Block.	
A.	J. Stevens Arms & Tool Co., Chicopee Falls, Mass.
	F. B. Stearns Co., Cleveland.
B.	White Sewing Machine Co., Cleveland.
BC.	Pope Mfg. Co., New York City.
C.	Elmore Mfg. Co., Clyde, O.
	Standard Motor Construction Co., Jersey City.
D.	Olds Motor Works, Detroit.
DE.	Locomobile Co. of America, Bridgeport, Conn.
D.	Haynes-Apperson Co., Kokomo, Ind.
	Mitchell Motor Car Co., Racine, Wis.
E.	Baker Motor Vehicle Co., Cleveland.
	Kirk Mfg. Co., Toledo.
	Worthington Auto. Co., New York City.
F.	Waltham Mfg. Co., Waltham, Mass.
	George N. Pierce Co., Buffalo.
	Matheson Motor Car Co., Ltd., Holyoke, Mass.
	Cadillac Automobile Co., Detroit.
G.	Peerless Motor Car Co., Cleveland.
	Reliance Motor Car Co., Detroit.
	Ford Motor Co., Detroit.
	Corbin Motor Vehicle Corporation, New Britain, Conn.
H.	Thomas B. Jeffery & Co., Kenosha, Wis.
HI.	Electric Vehicle Co., Hartford, Conn.
I.	Autocar Co., Ardmore, Pa.
J.	Grout Bros. Automobile Co., Orange, Mass.
	Northern Mfg. Co., Detroit.
K.	Duryea Power Co., Reading, Pa.
	Phelps Motor Vehicle Co., Stoneham, Mass.
	Apperson Bros. Auto Co., Kokomo, Ind.
L.	Winton Motor Carriage Co., Cleveland.
	Knox Automobile Co., Springfield, Mass.
M.	Knox Automobile Co., Springfield, Mass.
	E. R. Thomas Motor Co., Buffalo.
	Royal Motor Car Co., Cleveland.
N.	American Motor Co., Brockton, Mass.
	Springer Motor Vehicle Co., New York City.
O.	Daimler Mfg. Co., Long Island City.
	Vehicle Equipment Co., New York City.
PP-1	Lane Motor Vehicle Co., Poughkeepsie, N. Y.

FIFTH ANNUAL NEW YORK AUTOMOBILE SHOW, JANUARY 14 TO 21,

Held under the auspices of the Automobile Club of America and the National Association of Automobile Manufacturers, Incorporated.

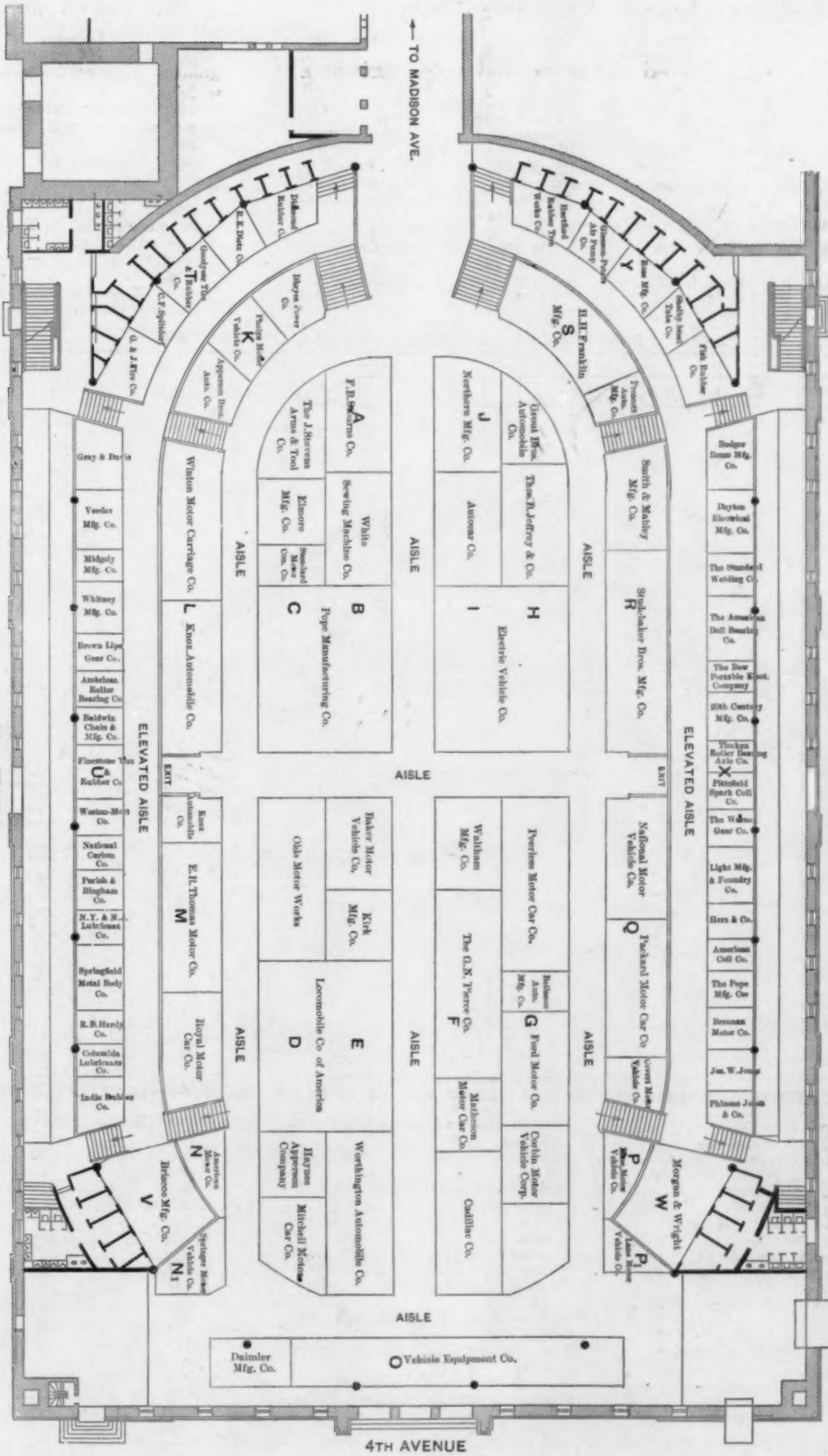


DIAGRAM OF EXHIBITORS' SPACES ON MAIN FLOOR AND ARENA PLATFORM OF MADISON SQUARE GARDEN.

Q. Covert Motor Vehicle Co., Lockport, N. Y.
Packard Motor Car Co., Detroit.
National Motor Vehicle Co., Indianapolis.
R. Studebaker Automobile Co., South Bend, Ind.
Smith & Mabley Mfg. Co., New York City.
S. Prescott Automobile Mfg. Co., N. Y. City.
H. H. Franklin Mfg. Co., Syracuse, N. Y.

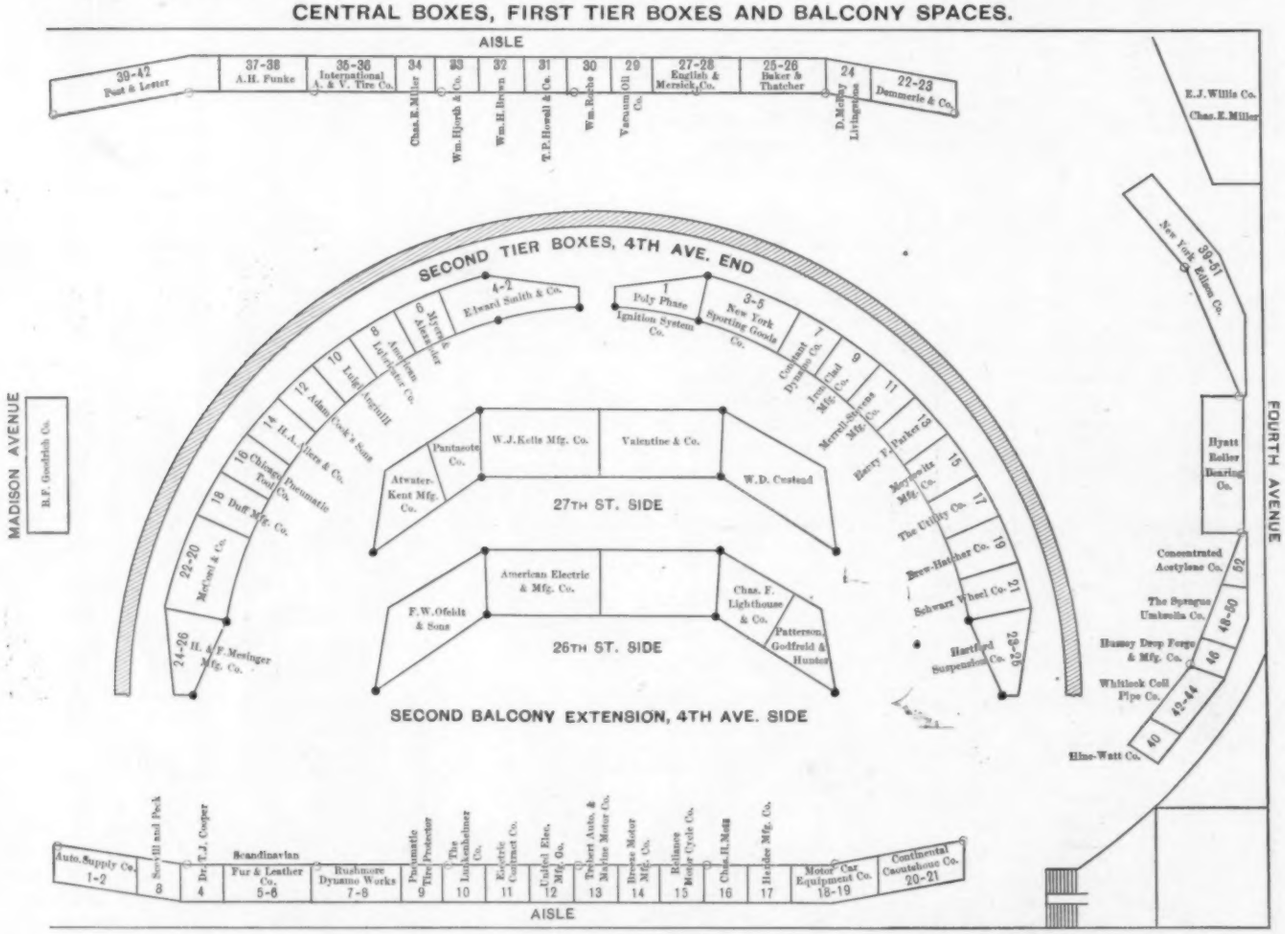
Arena Platform.

T Diamond Rubber Co., New York City.
R. E. Dietz Co., New York City.
Goodyear Tire & Rubber Co., Akron, O., & New York City.
R. E. Hardy Co., Detroit. & New York City.
Columbia Lubricant Co., New York City.
India Rubber Co., New Brunswick, N. J. (Hartford Rubber Works Co.).
V. Briscoe Mfg. Co., Detroit.
W. Morgan & Wright, Inc., Chicago.
X. Phineas Jones & Co., Newark, N.J.
Joseph W. Jones, New York City.
Pope Mfg. Co., New York City.
American Coil Co., West Somerville, Mass.
Herz & Co., New York City.
Light Mfg. & Foundry Co., Pottstown, Pa.
Warner Gear Co., Muncie, Ind.
Pittsfield Spark Coil Co., Pittsfield, Mass.
Hartford Rubber Works Co., Hartford, Conn.

Balcony.

1-2. Auto. Supply Co., New York City.
3. Scoville & Peck Co., New Haven, Conn.
4. Dr. T. J Cooper, Paterson, N. J.
5-6. Scandinavian Fur & Leather Co., New York City.
7-8. Rushmore Dynamo Works, Plainfield, N. J.
9. Pneumatic Tire Protector Co., Dayton, O.
10. Lunkenheimer Co., N. Y. City.
11. Electric Contract Co., N. Y. City.
12. United Electrical Mfg. Co., N. Y. City.
13. Trebert Auto. & Marine Motor Co., Rochester, N. Y.

CENTRAL BOXES, FIRST TIER BOXES AND BALCONY SPACES.



SPACES IN CENTRAL AND FIRST AND SECOND TIER BOXES, BALCONY AND SECOND BALCONY EXTENSION.

C. F. Splitdorf, New York City.
G & J Tire Co., Indianapolis.
U. Gray & Davis, Amesbury, Mass.
Veeder Mfg. Co., Hartford, Conn.
Midgley Mfg. Co., Columbus, O.
Whitney Mfg. Co., Hartford, Conn.
Brown-Lipe Gear Co., Syracuse.
American Roller Bearing Co., South Framingham, Mass.
Baldwin Chain & Mfg. Co., Worcester, Mass.
Firestone Tire & Rubber Co., Akron, O.
Weston-Mott Co., Utica, N. Y.
National Carbon Co., Cleveland.
Parish & Bingham Co., Cleveland.
New York & New Jersey Lubricant Co., N. Y. City.
Springfield Metal Body Co., Springfield, Mass.
Timken Roller Bearing Axle Co., Canton, O.
20th Century Mfg. Co., New York City.
Dow Portable Electric Co., Braintree, Mass.
American Ball Bearing Co., Cleveland, O.
Standard Welding Co., Cleveland.
Shelby Steel Tube Co., Pittsburg.
Dayton Electrical Mfg. Co., Dayton, O.
Badger Brass Mfg. Co., Kenosha, Wis.
Y. Fisk Rubber Co., Chicopee Falls, Mass.
Rose Mfg. Co., Philadelphia.
Brennan Motor Co., Syracuse, N. Y.
Gleason-Peters Air Pump Co., New York City.
14. Breeze Motor Mfg. Co., Newark, N. J.
15. Reliance Motor Cycle Co., Addison, N. Y.
16. Charles H. Metz, Waltham, Mass.
17. Hendee Mfg. Co., Springfield, Mass.
18-91. Motor Car Equipment Co., N. Y. City.
20-21. Continental Caoutchouc Co., N. York City.
22-23. Demmerle & Co., N. Y. City.
24. D. Mc Rae Livingstone, N. Y. City.
25. Baker & Thatcher, Attleboro, Mass.
26. Edison Storage Battery Co., Glen Ridge, N. J.
27-28. English & Mersick Co., New Haven, Conn.

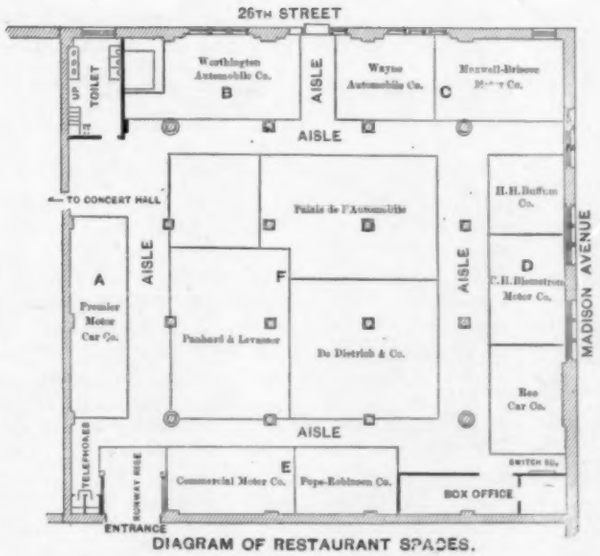


DIAGRAM OF RESTAURANT SPACES.

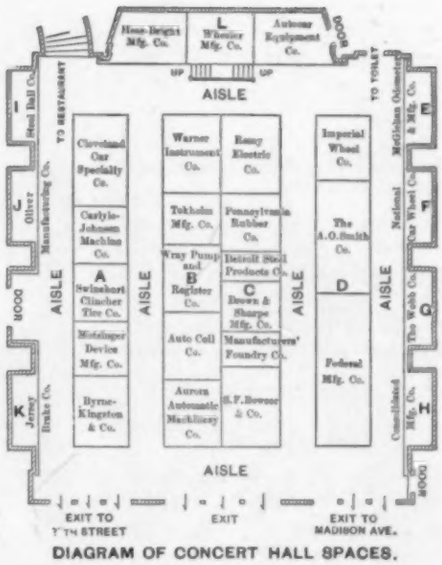
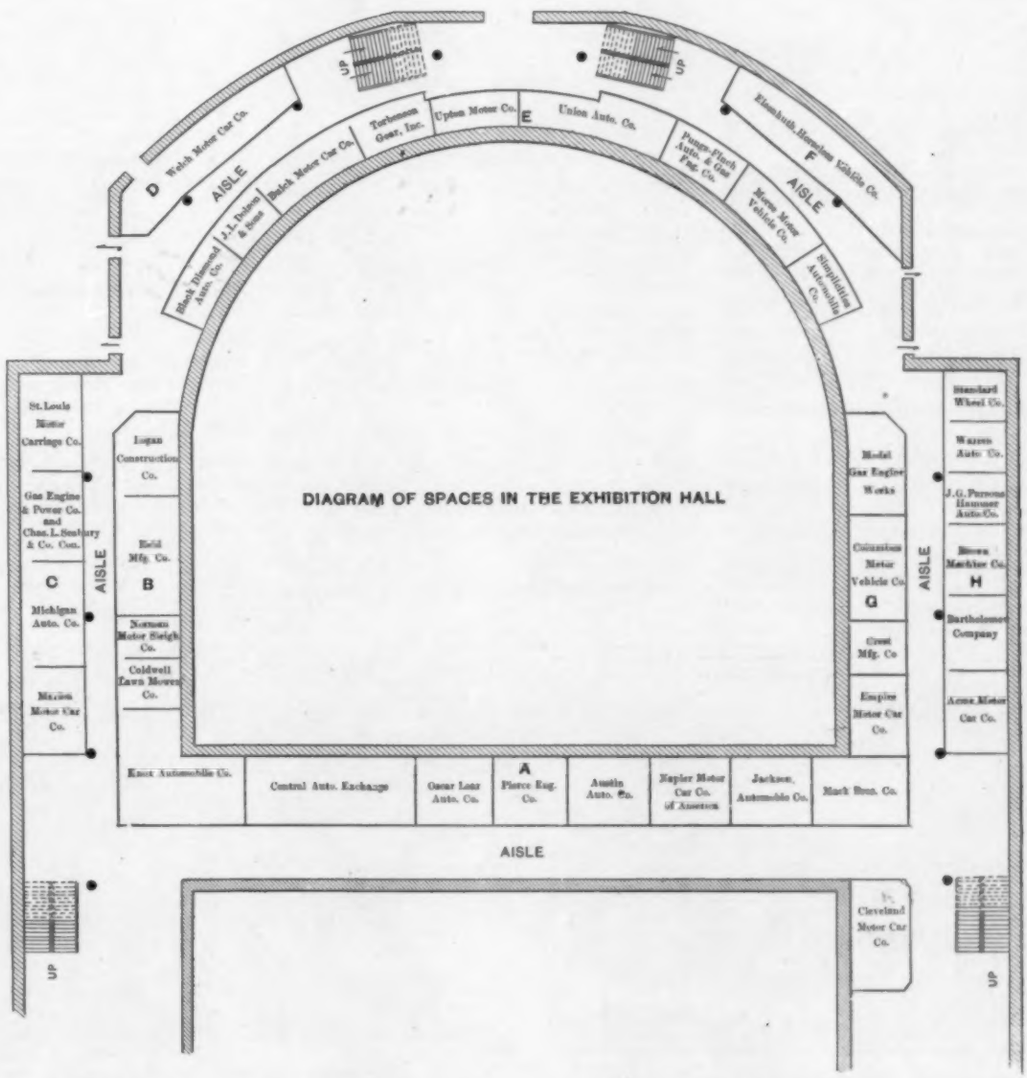


DIAGRAM OF CONCERT HALL SPACES.



RESTAURANT, CONCERT HALL AND EXHIBITION HALL SPACES, MADISON SQUARE GARDEN.

29. Vacuum Oil Co., New York.
30. Wm. Roche, N. Y. City.
31. T. P. Howell & Co, Newark, N. J.
32. Wm. H. Brown, Boulevard, Chicago, Ill
33. Wm. Hjorth & Co., Jamestown, N. Y.
34. Charles E. Miller, N. Y. City.
35-36. International Auto. & Vehicle Tire Co., N. Y. City.
37-38. A. H. Funke, N. Y City.
39-42. Post & Lester Co., Hartford, Conn.

First Balcony Extension.

Wm. Cramp & Sons Ship & Engine Bldg. Co., Philadelphia.
W. J. Duane & Co., 1900 Broadway, N. Y. City.
W. J. Cross, Brooklyn, N. Y.
Saks & Co., N. Y. City

Block. Exhibition Hall.

A. Mack Bros. Co., Brooklyn, N. Y.
Jackson Automobile Co., Jackson, Mich.
Napier Motor Co. of America, Boston.
Austin Automobile Co., Grand Rapids, Mich.
Pierce Engine Co., Racine, Wis.
Oscar Lear Automobile Co., Columbus, O.
Central Automobile Exchange, Providence, R. I.
Knox Automobile Co., Springfield, Mass.

B. Coldwell Lawn Mower Co., Newburgh, N. Y.
Norman Motor Sleigh Co., Boston, Mass.
Reid Mfg. Co., Detroit, Mich.
Logan Construction Co., Chillicothe, O.

C. Marion Motor Car Co., Indianapolis.
Michigan Automobile Co., Kalamazoo, Mich.
Gas Engine & Power Co. & Chas. L. Seabury Co., Consolidated, Morris Heights, N. Y.
St. Louis Motor Carriage Co., N. Y. City.

D. Welch Motor Car Co., Detroit and Pontiac.

E. Black Diamond Auto Co., Utica, N. Y.
John L. Dolson & Sons, Charlotte, Mich.
Buick Motor Car Co., Jackson, Mich.
Torbenson Gear, Inc., Bloomfield, N. J.
Upton Motor Co., Lebanon, Pa.
Union Automobile Co., Oakdale, Mass., and Union City, Ind.
Pungs-Finch Auto. & Gas Engine Co., Detroit.

F. Eisenhuth Horseless Vehicle Co., Middletown, Conn.

G. Model Gas Engine Works, Auburn, Ind.
Columbus Motor Vehicle Co., Columbus, O.
Michigan Steel Boat Co., Detroit.
Crest Mfg. Co., Dorchester, Mass.
Ardsley Motor Car Co., Yonkers, N. Y.

H. Acme Motor Car Co., Reading, Pa.
Bartholomew Co., Peoria, Ill.
James Brown Machine Co., Pawtucket, R. I.
Hill Mfg. Co., Buffalo, N. Y.
Warren Automobile Co., Warren, Pa.
Standard Wheel Co., Terre Haute, Ind.

I. Cleveland Motor Car Co., Cleveland.

Restaurant.

A. Premier Motor Mfg. Co., Indianapolis.

B. Worthington Automobile Co., N. Y. City.

C. Wayne Automobile Co., Detroit.
Maxwell-Briscoe Motor Co.,Tarrytown, N. Y.

D. C. H. Blomstrom Motor Co., Detroit.
H. H. Buffum Co., Abington, Mass.
Reo Motor Car Co., Lansing, Mich.

E. Commercial Motor Co., N. Y. City.
Pope-Robinson Co., Hyde Park, Mass.

F. Panhard & Levassor, N. Y. City.
Palais de l'Automobile, N. Y. City.
De Dietrich & Co., N. Y. City.

First Tier Boxes.

39-51. New York Edison Co., N. Y. City.
52. Concentrated Acetylene Co., Indianapolis.
48-50. Sprague Umbrella Co., Norwalk, O.
46. Hussey Drop Forge & Mfg. Co., Cleveland.
42-44. Whitlock Coil Pipe Co., Hartford, Conn.
40. Hine-Watt Mfg. Co., Chicago.

Central Boxes.

4th Ave. Hyatt Roller Bearing Co., Harrison, N. J.
Mad. Ave. B. F. Goodrich Co., Akron, O.

First Tier, Fourth Avenue.

A. Chas. E. Miller, New York.
B. E. J. Willis Co., New York.

Concert Hall.

A. Byrne—Kingston & Co., Kokomo, Ind.
Motsinger Device Mfg. Co., Pendleton, Ind.
Swinehart Clincher Tire & Rubber Co., Akron, O.
Carlyle-Johnson Machine Co., Hartford, Conn.
Cleveland Car Specialty Co., Cleveland.

B. Warner Instrument Co., Beloit, Wis.
Tokheim Mfg. Co., Cedar Rapids, Ia.
Wray Pump & Register Co., Rochester, N. Y.
Autocoil Co., Jersey City.
Aurora Automatic Machinery Co., Aurora, Ill.

C. Remy Electric Co., Anderson, Ind.
Pennsylvania Rubber Co., Jeannette, Pa.
Detroit Steel Products Co., Detroit.
Brown & Sharpe Mfg. Co., Providence, R. I.
The Manufacturers' Foundry Co., Waterbury, Conn.
S. F. Bowser & Co., Inc., Fort Wayne, Ind.

D. Imperial Wheel Co., Flint, Mich.
A. O. Smith Co., Milwaukee, Wis.
Federal Mfg. Co., Elyria, O.

E McGiehan Odometer & Mfg. Co., New York.

F. National Car Wheel Co., Rochester, N. Y.

G. Webb Co., New York.

H. Consolidated Mfg. Co., Toledo.

I. Steel Ball Co., Chicago.

J. Oliver Mfg. Co., Chicago.

K. Jersey Brake Co., Newark, N. J.
Wheelock Motor Car Clock Co., Boston, Mass.

L. Hess-Bright Mfg. Co., Philadelphia.
Wheeler Mfg. Co., Detroit.
Autocar Equipment Co., Chicago.

Second Tier Boxes.

2-4. Edward Smith & Co., New York.
6. Myers & Alexander. New York.
8. American Lubricator Co., Detroit.
10. Luigi Angiulli, New York.
12. Adam Cook's Sons, New York.
14. H. A. Allers & Co., New York.
16. Chicago Pneumatic Tool Co., New York
18. Duff Mfg. Co., Alleghany, Pa.
20-22. McCord & Co., Chicago, New York.
24-26. H. & F. Mesinger Mfg. Co., New York.
1. Poly Phase Ignition System Co., New York.
3-5. New York Sporting Goods Co., New York.
7. Constant Spark Plug Co., Boston.
9. Iron Clad Mfg. Co., Brooklyn.
11. Merrell-Stevens Mfg. Co., Kalamazoo, Mich.
13. Henry F. Parker, Newburgh, N. Y.
15. Meyrowitz Mfg. Co., New York.
17. Utility Co., New York.
19. Brew-Hatcher Co., Cleveland.
21. Schwarz Wheel Co., Philadelphia.
23-25. Hartford Suspension Co., New York.

Second Balcony Extension.

W. J. Kells Mfg. Co., Jersey City.
W. D. Custead, New York.
American Electrical Novelty & Mfg. Co., New York.
F. W. Ofeldt & Sons, Brooklyn.
Valentine & Co., New York.
Chas. F. Lighthouse & Co., New York.
Patterson, Gottfried & Hunter, New York.
Pantasote Co., New York.
Atwater, Kent Mfg. Co., Philadelphia.

SPECIAL TRAIN FROM TOLEDO.

Special Correspondence.

TOLEDO, Jan. 9.—A special train leaving here Friday, January 13, will take about two score Toledoans to New York to attend the automobile show. The train, which has been engaged by the Toledo Motor Car Company, will consist of two sleepers and a diner, which will be attached to the New York limited, over the Pennsylvania line. This will land the party in New York the next morning. Among those who will go are: Aaron Chesbrough, R. V. Law, H. W. Wachter, M. Liebee, W. Verity, A. M. Stewart, C. B. Halstead, B. O. Gamble, A. B. Harsh, Mr. and Mrs. M. V. Kelley, Mr. and Mrs. A. M. Coughlin, Mr. and Mrs. E. H. Close, Dr. and Mrs. A. C. Taft, Mr. and Mrs. J. N. Bick, Mr. and Mrs. Thomas Bentley, J. M. Skinner, A. L. Irish and Frank Hake.

There will be an exhibit of De Deitrich automobiles in the reception room of the Waldorf-Astoria, in addition to that in Madison Square Garden, where the space available was insufficient to accommodate as many machines as Mr. Jarrige wished to show. A number of the latest models of the De Dietrich car have recently arrived from Luneville, France, and are on view at the special exhibition.

It is probable that the Cleveland Automobile Club will send a delegation to the New York show in a special car, and perhaps two of them. A dozen or more prominent members of the club and tradesmen have agreed to go, and it is likely that there will be many more than that number.

OPENING OF THE IMPORTERS' SALON.

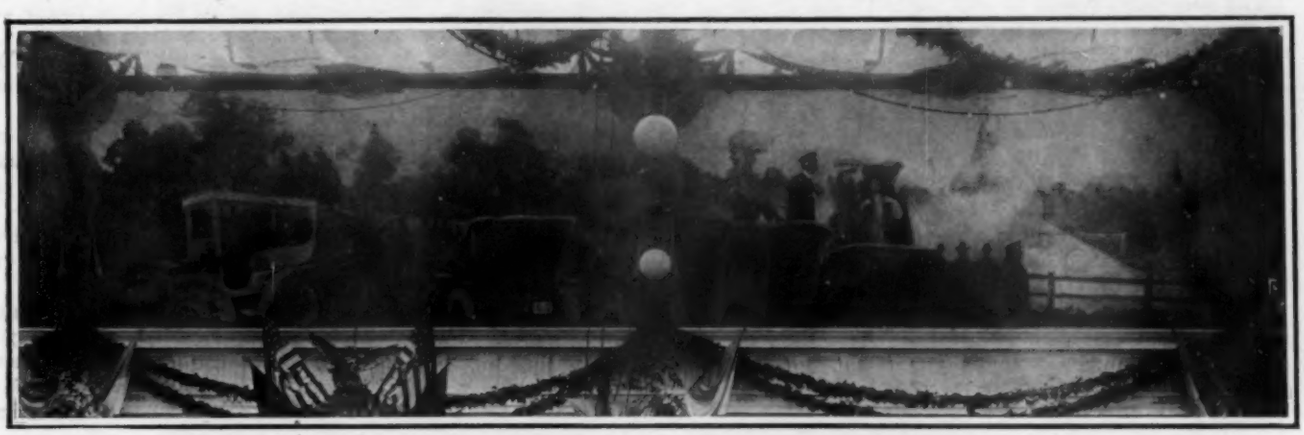
Brilliant Social Function at Private View of the Foreign Cars on Exhibition in Herald Square Hall, New York, Tuesday Evening, January 10.

IT is probable that as a purely social function, the Automobile Show can never equal the present Horse Show; but there is even now every indication that the former, young as it is, has established itself as a permanent institution, and that it will, year by year, attract larger audiences. The great question of the day, so far as New York is concerned, is not as to the permanence or the relative importance of the Automobile Show, these are already assured, but where such an exhibition can be housed with due regard to both exhibitors and spectators? The one great show building of New York, the Madison Square Garden, though only comfortably filled four years ago, with a large part of the main floor set apart as a track, now fails to accommodate even the major part of the would-be exhibitors. As the result of the lack of space, the importers of foreign cars, last year relegated to the Garden restaurant, decided to avail themselves of the more generous proportions of the Herald Square Exhibition Hall, the upper floor of the block between Thirty-fourth and Thirty-fifth streets on Broadway. In a good location, with easy access by numerous elevators, and well lighted from both sides and roof, this new hall has much to recommend it within the limits of its size; but thus far it has not proved popular, and the various shows held there have failed to attract adequate attendance. If any doubts existed as to the success of the present venture, they were dispelled early on the evening of Tuesday as automobiles and carriages whirled into Herald Square, and a dense crowd of pedestrians packed the sidewalks, all bound for the eight large elevators, that ran swiftly from the ground floor to the ninth story. Invitations had been sent out for a private view preceding the public opening on Wednesday.

The exhibition is under the management of the Importer's Automobile Salon, an organization of the New York importers of foreign cars, of which Carlton R. Mabley is president, E. T. Birdsall vice-president, E. R. Hollander treasurer and Sidney B. Bowman secretary. In recognition of the international character of such an exhibit, the representatives of Italy, France, Germany, England and Belgium at Washington, were invited to serve as patrons.

By way of securing a fitting setting for the cars, the hall was decorated at considerable expense, the result being in every way successful. The large central skylight, with sides totaling nearly six hundred feet, was bordered by a frieze about ten feet high, a cleverly executed series of paintings by "Pal," the French artist. The subject is a road race, the background suggesting Long Island; and the various panels, each with its own subject, practically make a continuous panorama. While some cars speed swiftly on their dusty way, others are shown *en panne*, broken down by the roadside, or with crew working hurriedly to replace a tire; other views show the outside cars parked in the fields with eager spectators in and about them. The artist has caught very happily the rush and spirit of the contest, and only a stray whiff of burnt gasoline is needed to complete the illusion. Above the frieze are groups of flags of the various nations, while the upper part of the skylight is draped with broad bands of white bunting, and with strings of evergreens interspersed with electric globes. At each end the Show poster, a Lady Godiva up-to-date, with an automobile in place of a horse, stands out in bold colors. One very effective detail of the decoration is the use of uniform signs, very plain oblong boxes of dark green, bearing the name of the firm and the place of manufacture in gold letters, lighted from within At the West end of the hall a band stand was erected for the orchestra, Giannini's Royal Marine Band, of Italy, under the direction of Sig. Ettore Martini. At the East end a raised platform was built for the guests of honor and the officials, decorated with smilax and daisies. At the extreme West end a picturesque Japanese "village" was fitted up. with dainty little geishas in attendance to serve tea.

Before the hour of opening, at 8.30 o'clock, the hall was filled almost to its limit with representatives of society, of automobile club life and, of course, the automobile industry. All the dome lights were extinguished and for a time the hall was in partial darkness, lighted only about the sides. After the playing of the Star Spangled Banner, the guests of the evening were escorted to the stand by the officers of the associations and President Mabley made the opening speech. Calling to mind the first exhibition at which foreign cars were shown in New York, barely three years ago, Mr. Mabley spoke of the astonishment created by their great horsepower, "ten and even twelve," and the awe with which these monsters were regarded, by American motorists. He outlined briefly, the rapid progress and improvement of American cars since then, on the lines of the foreign builders, and spoke of the further possibilities of improvement in manufacture, and of he future for the perfected product of both hemispheres. At the conclusion of his remarks he introduced Winthrop E. Scar-



TWO CHARACTERISTIC PANELS OF THE DECORATIVE FRIEZE WHICH IS THE CHEF D'OEUVRE OF THE IMPORTERS' SALON NOW OPEN IN THE HERALD SQUARE HALL, NEW YORK.

ritt, who spoke to very good effect, pitching his voice to reach even the end of the hall, a matter of no small difficulty in the buzzing crowd. Declaring the exhibition formally open, Mr. Scarritt pressed a bulb, and the many lights, small and large of the great dome, burst into fire.

After one of those inspiring and optimistic exhortations for which he is noted, Mr. Scarritt introduced Baron Moncheur, Ambassador Extraordinary and Minister Plentipotentiary of His Majesty, the King of the Belgians; who, speaking in English, made a brief address, complimenting America. The next speaker, M. des Portes de la Fosse, Counselor to the French Embassy, spoke in French, addressing President Mabley, and his remarks were not audible at any distance.

The speaker of the evening was Herr Schiller-Steinwartz, Secretary of the German Embassy, representing Minister Speck von Steinburg, now in Europe. He spoke in very good English, with a voice pitched to the occasion, claiming the automobile as the child of Germany, but paying a compliment to the foster-parent that it had found in France, and commenting on the rapid progress already made in this country. Speaking of the common interest of all nations in the perfection of the new element of civilization, of the need for international amity rather than hostile competition, he closed his remarks with an apology for perverting an old English proverb to a new reading, "Gasoline is thicker than water."

Signor Centaro, of the Italian Embassy, addressed his remarks to President Mabley and consequently was inaudible at a distance; following him came Robert B. Armstrong, Assistant Secretary of the Treasury and in immediate charge of the Customs Division so beloved of importers. Mr. Armstrong spoke very briefly, welcoming the foreign machines in the name of the Government, but proclaiming the merits of the home production. Sir Percy Sanderson, British Consul-General to the United States, and M. Maurice Saufflot de Magny, the French Consul-General, were present but did not speak. Mr. Scarritt announced the end of the formal exercises, and the guests were then escorted through the hall to the various exhibits. The crowd in the aisles continued through the evening, and it was very difficult to make any progress or to get within view of the different cars.

Among those present were: Commodore F. K. Bourne, New York Yacht Club, with his son; Commodore W. K. Vanderbilt, Jr., Seawanhaka Corinthian Yacht Club, elected to the office earlier in the same evening; Mr. A. R. Shattuck; Mr. W. Gould Brokaw; Sir Thomas Dewar; Mr. Timothy L. Woodruff and Miss Lillian Morrison, his fianceé; Mr. and Mrs. Jules Vatable; Mr. and Mrs. Stephen H. Pell; Mr. and Mrs. R. A. C. Smith; Mr. and Mrs. John E. Roosevelt; Mr. and Mrs. Howard Gould; Mr. and Mrs. Lawrence Bogert Elliman; Mr. and Mrs. R. Hall McCormack; Mr. and Mrs. T. Pearsall Field; Mr. and Mrs. George Burroughs; Mr. and Mrs. Edward C. Wallace; Mr. and Mrs. Mortimer Schiff; Mr. and Mrs. Oscar Martin; Mr. and Mrs. Preston Hix; Mr. and Mrs. Eugene Beales, Jr.; Mr. and Mrs. James E. Martin; Mr. and Mrs. Eugene Jerome; Mrs. Richard P. Lounsbury; Mrs. George B. Loring; Baron Le Guene; Mr. Irving Brokaw; Dr. Austin Flint; Major John Peters; Col. John Jacob Astor. Messrs. George Arents, Jr.; Stephen Peabody; John R. Livermore; Townsend Hildreth; Sidney Chubb; Sliver Harriman; Gilbert Colgate; W. J. Cassard; Reginald Ronalds; R. Suydam Grant; Albert Stopford; Louis Wormser; R. A. McCreery; Jesse Seligman; Daniel Appleton; Arthur R. Kuser; E. K. Chamberlain; A. E. Pope; W. F. Osborn; Jefferson L. Seligman; Henry R. Lounsbury, Jr.; H. E. Galatin; Frederick O. Beach; Arthur T. Kemp; Samuel Untermyer; Edwin Stevens; Raymond Hoagland; Julius G. Hocke; George H. Baker, Jr.; H. E. Hendrickson; William Goadley Loew; J. E. Smith Hadden; Edward Thaw; S. B. Stevens; J. Ellsworth Magie; Samuel Milletts; D. C. Van Riper; Francis Potter; George B. Perkins, and Henry Rossiter Wellington.

Cars Late in Arriving.

The time between the closing of the Paris Show and the present opening was very short, and many of the cars were in the Customs House on Tuesday, while others were still on the ocean. All day long the cars from the several steamers arriving on Sunday and Monday were brought to the hall, some in their original cases, to be passed by the inspectors in the hall. The exhibit was necessarily incomplete on the opening night, and yet there was much more than could be seen to advantage in a single visit; many of the cars being worthy of a careful study. With some very interesting examples of the latest closed cars were a number with canopy tops and quite a large proportion of open cars; perhaps half a dozen rear-entrance tonneaus were shown, but nearly all the cars had the latest long wheel-base and one or another form of side-entrance.

The Smith & Mabley exhibit was the most important in point of numbers and variety of makes, the Panhard, Mercedes and Renault being well represented. Two of the 40-horsepower Mercedes cars were shown, with two of the 18-28, one with a handsome Rothschild landaulet body. The Panhard exhibit included a 35-horsepower open side-entrance touring car, with a chassis of the same horsepower shown without body, and a 24-horsepower with top, seating five in the tonneau. Four Renault cars were shown, the chassis of the 24-30, and three complete cars of 14-horsepower, all side-entrance and one of them with a swing seat.

Messrs. Hollander & Tangeman have a very large assortment of the F. I. A. T. cars, only three of which were in place, others being in the Customs or still on the ocean. A large limousine car is in place, also two open cars, one with the tonneau detached.

Special interest attaches to the Pipe cars, exhibited by J. S. Heller, as this make, well-known as it is, has never been shown in New York. Two of the 15-20 cars are shown, one with the "Palace de Luxe" body, very large and roomy, seating four comfortably, and furnished for touring. The other is an elegantly fitted limousine, both having electric lights inside.

The Decauville exhibit of the Standard Automobile Company includes a large variety of open and closed cars, one of the most notable being of 40-60 horsepower, fitted with seats for five in the body, with all touring conveniences, including toilet with running water. Another car of the same power has seats for five in the open tonneau, with two in front. A landaulet of 16-20 horsepower is shown, with touring cars of 24-28 and 30-35 horsepower and the separate chassis of the same powers; there is also a 12-16 open car, and the racer which was seen at Eagle Rock and which will run in Florida this month.

The de Dietrich exhibit attracts general attention from its 30-horsepower palace car, a large body completely enclosed, with plate-glass sides and curved glass panels on the corners, the interior fitted with four revolving armchairs, table, desk and two iceboxes, with electric lights. A very handsome 40-horsepower car is shown, with a 20-horsepower coupé.

The Corre car is a new-comer in New York, made in Paris and fitted with the Mutel motor, 16-20 horsepower. The body has doors on each side.

The Central Automobile Company shows two Mors cars, one a limousine body with 24-32 horsepower motor, the other of the same horsepower with open top and side-entrance. It also has a Napier car, 15-18 horsepower, with top and rear-entrance tonneau.

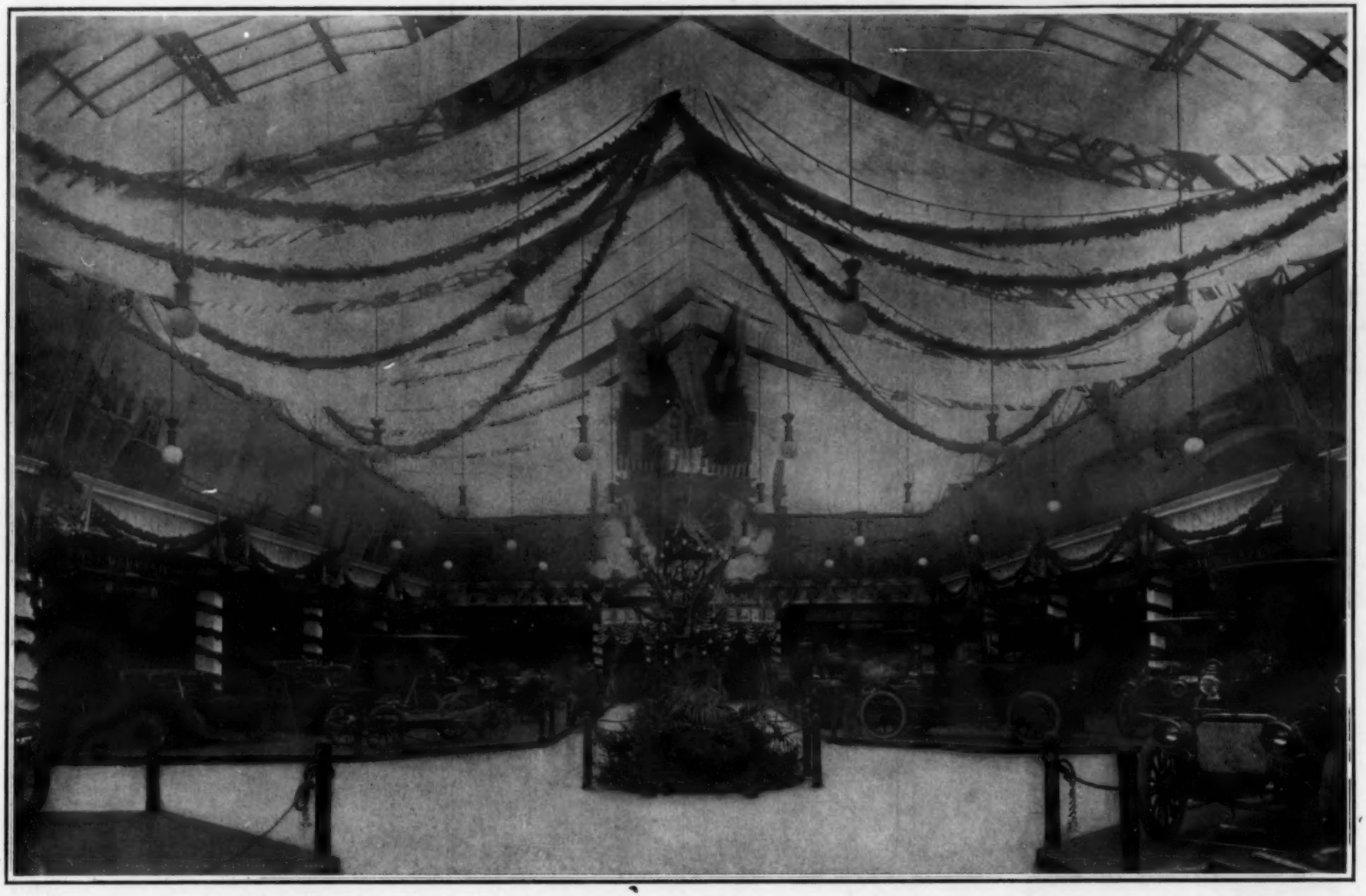
The Richard-Brasier exhibit has a highly finished chassis of the 30-horsepower car, well worth special attention, also an open side-entrance car of the same power and a similar model of 16-24 horsepower.

The Delahave exhibit includes thus far, but one car, 25-32, with side-entrance and folding top with glass front.

Another new-comer is the Martini car, shown complete in an open side-entrance, 24-horsepower, with the chassis of the 40-horsepower.

The Peugeot car has two representatives, both 18-26 horsepower, the plain chassis and an open swing-seat touring car.

The Hotchkiss exhibit attracted much attention, though thus far only the 17-25 horsepower chassis is shown; this, however, is worth careful study. Beside it is a crankshaft with the ball-bearings, springs and felt pads, and also a wheel bearing cut to show the section.



VIEW OF PORTION OF THE CENTRAL HALL AT THE IMPORTERS' SALON, NOW OPEN IN HERALD SQUARE, NEW YORK—LOOKING WEST.

Band stand over the center aisle in the background, surmounted by the original "poster" painting. Festoons meeting in center of skylight and along sides are strung with electric lamps.

The Charron, Girardot et Voigt Company is represented by an 18-horsepower landaulet with folding top.

The Darracq exhibit includes an 8-12-horsepower open car with rear entrance, a 12-15-horsepower open car with side-entrance, a 15-20-horsepower side-entrance and a similar car with open top, and also the chassis of the same power. In the larger powers is a 30-35-horsepower side-entrance car.

The Clement-Bayard Company shows the motor of 45 horsepower separate from the car, also two 20-horsepower cars, one a coupé and one with cape top.

The Leon Bolleé car is new to New York shows, the exhibit thus far including three of the 40-horsepower, a plain chassis, a touring car with seats for five inside, two of the seats swinging from the side of the body; and a handsome side-entrance car with the two front seats cut in quadrant shape and with the side doors swinging out to make a very roomy entrance from either side, the central portion of the front seat being fixed so that the driver need not dismount to allow the doors to open. This car has a folding top of the buggy pattern.

The only independent British exhibit is that of the Electromobile Company of London, an electric car of the general construction of the gasoline car, with the same type of chassis; the car shown has been in use for some time, but a new car is expected by steamer.

The Rothschild exhibit includes a landaulet body, with folding rear portion, shown on a Mors chassis. A single specimen of La Minerve, with four-cylinder body, is shown.

One purely American concern, the H. H. Franklin Mfg. Co., has a space, through its New York agent, showing five of its air-cooled cars, including the one which made the trans-Continental trip last summer.

Along the sides of the hall there are stands containing a representative exhibit of sundries, accessories and component parts. Tires exhibited include the Continental, Samson non-puncture, Peters, and a large space is reserved for the Michelin concern. Clothing is displayed by R. H. Macy & Co., and the Scandinavian Fur & Leather Co. An extensive display of sundries is made by Leon Rubay. Many of these exhibits were incomplete on the opening night and will be described in later reports.

The Show will be open day and evening through the week until January 24. By the end of this week it will be in more complete condition, and will afford an exceptional opportunity to study the most advanced work of foreign makers.

An American View of Imported Cars.

A SOMEWHAT hasty look over the Importers' Salon on the opening day discloses both a marked uniformity of design in certain accepted features, such as the pressed steel frame, the mechanically opened inlet valve—which seems this year to have made a clean sweep in the foreign cars—and the side-entrance tonneau or "double phaeton," and, at the same time, a somewhat surprising diversity of detail, persisting after the superficial observer might have thought that all occasion for radical difference of opinion had ceased to exist. Most marked in this category, perhaps, is the use side by side of the make and break and the jump spark systems of ignition. A few years ago the latter was deemed to be the only system worth considering for high speed motors, on account of the elimination of moving parts in the cylinder and the ease with which the mechanical simplicity of the system lent itself to accurate timing with two or more cylinders. Latterly the make and break system, which in its earlier American forms was deservedly ruled out on account of the clumsiness of its moving parts, was taken up and refined by the foreign builders, and found to possess the advantage over the jump spark that it gave a "fatter" spark with the same battery power. It was also popularly supposed to be easier to insulate, but this "advantage" was doubtless rather more than offset by its greater mechanical complexity.

To-day we find both systems about equally popular abroad, but with the difference that a magneto is invariably used with the make and break system, whereas until the present year the storage battery has usually been depended upon with the other system. This year the high tension Eisemann or Simms-Bosch—generally the latter—magneto is used on probably at least one-third of the cars shown, and the low tension Simms-Bosch magneto on most of the others. A few machines—notably the Bollée and the Peugeot—have both magneto and battery ignition on one motor, the former using a high tension magneto and two separate sets of spark plugs, and the latter a low tension magneto and contact sparkers. Only one system is used at a time.

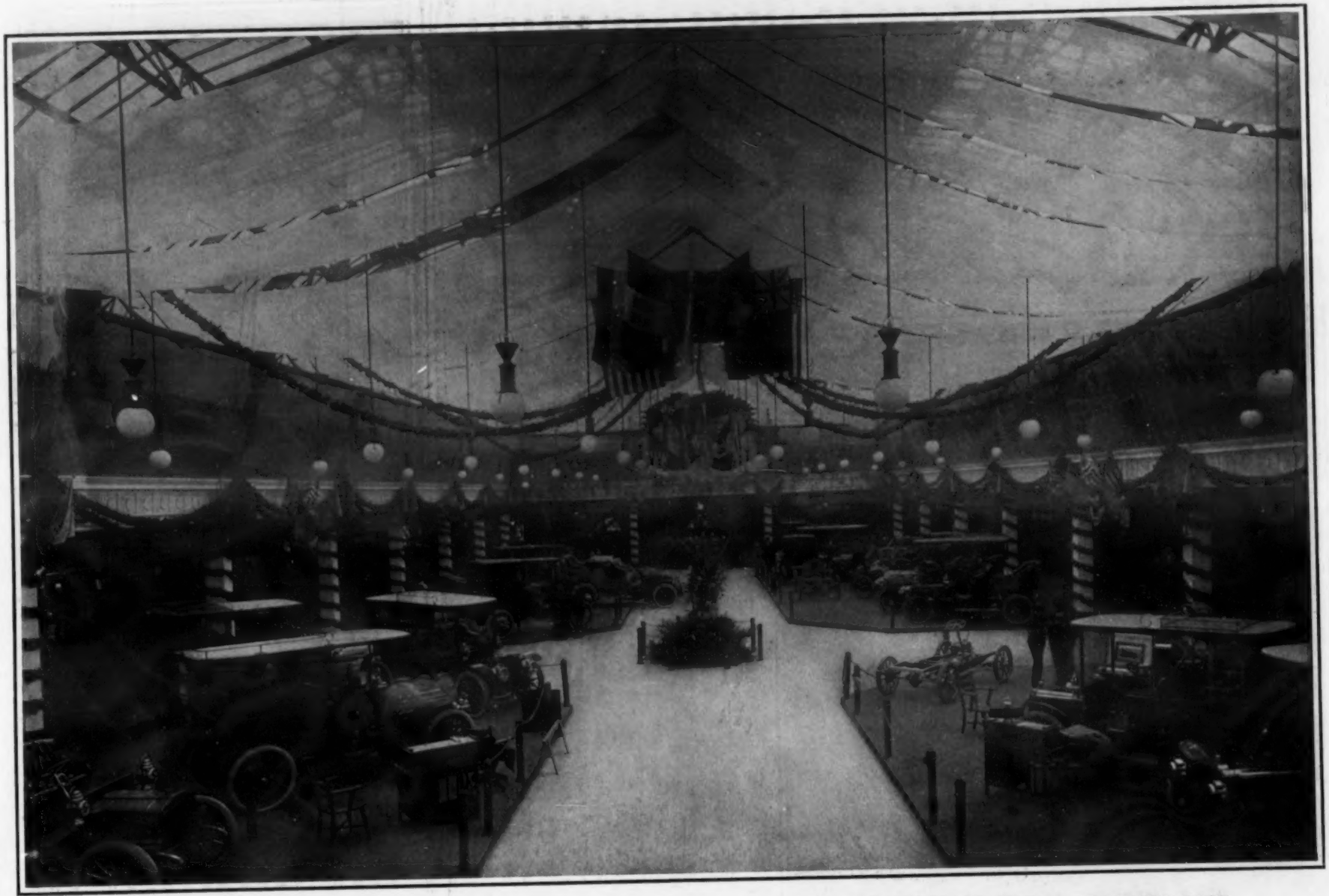
A feature equally notable and even more striking is the very rapid increase in the use of ball bearings, in all the principal bearings save in the engine itself. This includes all the gear shaft bearings, the countershaft and bevel gear thrust bearings, all the rear axle bearings when propeller shaft drive is used, and the wheel hub bearings likewise. So far as inquiry has gone, all these bearings are of the solid non-adjustable make known abroad as the "D. F. & W.," which in this country are imported, and are shortly to be manufactured, by the Hess-Bright Manufacturing Company. It is the present writer's impression that the possibilities of these bearings were first demonstrated in the Mercedes, and certainly they have for two or three years been a conspicuous feature of that much copied machine.

In one car, indeed, these bearings are used on the motor crankshaft. This is the Hotchkiss, the new chassis of which is among the most interesting at the Salon. A separate crankshaft exhibited with its bearings on a stand was the center of much interest, and conflicting views were expressed regarding its practicability. As the name of the Hotchkiss company may be taken as a guarantee that it will put out nothing without at least a fair working test, it may be supposed that the success of these bearings under such peculiarly severe conditions is due to the features most strongly insisted on by its makers, viz., the exceptional quality of the material used, the extreme accuracy in sizing the balls and grinding the ball races, and the fact that these bearings, not being adjustable, are not at the mercy of the attendant with a monkey-wrench. Besides this, the makers make a point of specifying the proper load for every bearing, and of guaranteeing no bearing except under conditions approved by them. It might be added, perhaps, that a great deal depends on the way the bearings are lubricated and protected from dust and from metal grit; though it must be admitted that not all of the cars embodying these bearings displayed equal care in their protection. In this respect nothing was quite equal to the known Mercedes practice.

It should not be inferred from the foregoing that plain bearings were nowhere seen. They were seen on a good many machines, of which the Peugeot, the C. G. V., the Bollée, and the Corre come first to mind. The tendency toward ball bearings is, however, so marked, and the success of certain makers in their use so undeniable, as to make the eventual triumph of the ball bearing seem practically certain.

The automatic carbureter is evidently the thing today, as without question it deserves to be. Hardly a carbureter was seen which was not equipped either with an automatic air inlet governed by a spring, diaphragm, or piston, or which had not the same inlet connected with the centrifugal governor which acted also on the throttle, or which did not at least claim the name of automatic by having the auxiliary inlet connected to the hand throttle when there was no governor. To what extent these last named devices are really entitled to the name of automatic may be questioned, since it is hardly imaginable that they will give the same mixture with, say, both the throttle and the auxiliary inlet wide open, when the motor is running fast as when it is running slow. Doubtless the test of use is better than any theorizing, however, and the fact that devices of this sort are found on some of the costliest as well as the cheaper cars makes one hesitate about condemning them off-hand.

Among what seem to be the strictly automatic devices the new Renault carbureter was the only one which the writer had a



CENTRAL HALL AT THE IMPORTERS' SALON, HERALD SQUARE, NEW YORK, ON THE OPENING DAY—LOOKING EAST.

Decorative frieze around hall under skylight, consisting of panels in colors, depicting road scenes at the Vanderbilt Cup Race.

AMONG THE ACCESSORIES.—EXHIBIT OF THE SCANDINAVIAN FUR AND LEATHER CO.

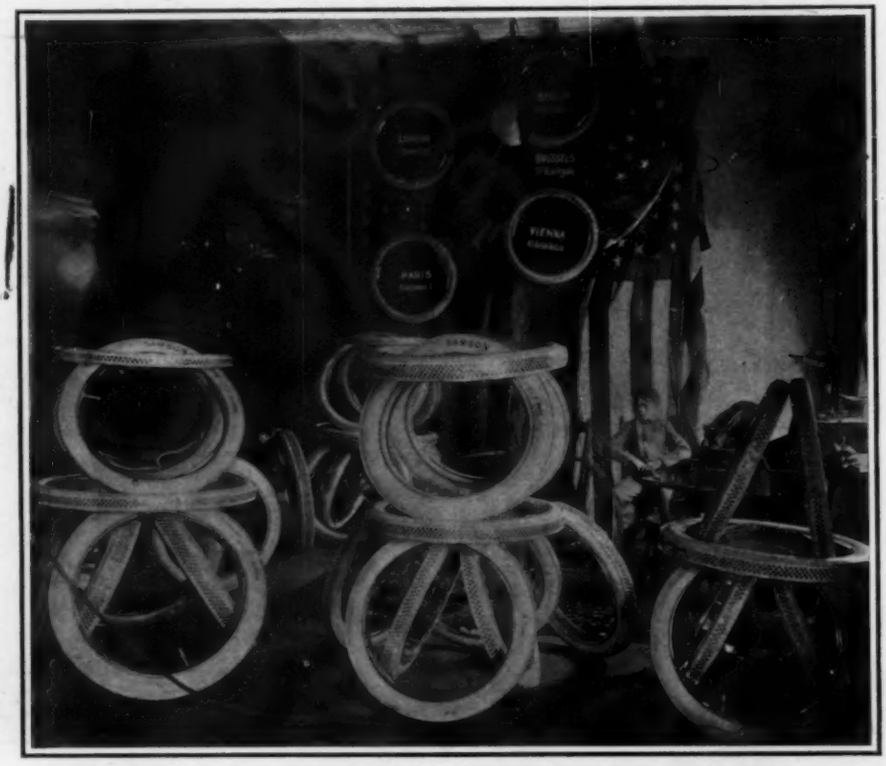
chance to dissect. In it a piston moves up and down in a short cylinder, being lifted by the suction and caused at the same time to rotate by means of a coarse square thread screw cut on its guiding stem. The rotation of the piston causes a cylindrical air-shutter attached to it to open more or less, and at the same time the central stem of the piston serves when being down, owing to the engine being at rest to close the gasoline spray orifice on which it then rests.

One other possibly significant tendency is to be noticed. This is the apparently growing disposition to leave one or another brake independent of the clutch. Thus, in the Mercedes the emergency brakes on the rear wheels are not connected to the clutch. In the Hotchkiss the same is true: in the Bollée the emergency brakes release the clutch, but the pedal or service brake does not. In the latter car, however, a narrow pedal immediately adjacent to the brake pedal is connected to the clutch, so that the right foot can press on both together when this is desired. In the Richard-Brazier machine none of the brakes are connected with the clutch. The reasons given for this departure are somewhat various. When the emergency brakes are free the explanation is that it is better not to permit the owner of the car to leave it standing with the brakes set, the motor running, the clutch released and *the gears in mesh*. When locking the rear brakes does not release the clutch he is compelled to bring the gears to the neutral position; and, consequently, the car is not in danger of being started by the first small boy who happens to release the brake lever.

When the service brake is free the intention appears to be to enable the user to hold the car by that brake on an up grade in case he misses a shift of gears. In this way the interval between the release of the brake and engagement of the clutch may be avoided, and if the motor threatens to stop from overload he is not compelled to release the clutch in order to apply the brakes. When, as in the Richard-Brazier, neither brake releases a clutch, the purpose is to permit the driver to coast with the clutch in and the brakes on, instead of being compelled to take his choice between the two alternatives. It may very well be that the automatic release of the clutch when brakes are applied is a point of less consequence now than it once was, since to-day there is no user of a car with the pedal control system who is not accustomed to pressing the clutch pedal at the same time that he applies either of the brakes.

Among the points which seem to be gaining ground abroad, but which the American builder does not seem to have thought much about, is the steadying of the rear axle against stresses due to severe braking on the rear wheels. Nearly every machine examined had provision either for steadying the rear brake shoes against their tendency to rotate with the wheels when tightened, by means of a compression or tension rod—sometimes both—attached to the shoes and to the frame, or, in case these shoes were supported only by the axle itself, as was the case with most of the shaft-drive cars, to steady the axle against rotation, thereby relieving the springs of that duty. Most of these devices are already familiar in principle to those who have had opportunity to inspect imported cars. The significant thing is their almost universal use now abroad.

Although actual novelties, at least as regards the more obvious features of design, were on the whole few, a good deal of interest was found in the Bollée car. In this machine the three point suspension idea is applied to the engine, the gear case, and the clutch, though not to the support of the frame itself on the axles. The back end of the engine crank-case is supported by two wings on short brackets riveted to the main frame. The front end of the crank-case is bolted to an A frame of angle iron, whose apex carries the bearing for the starting crank and is attached to the front cross member of the frame. The two-chain drive system is used, and the right-hand portion of the cross countershaft runs in a large tubular sleeve rigid



AMONG THE SUNDRIES.—EXHIBIT OF THE SAMSON LEATHER TIRE AND PROTECTOR.

with the gear case and bolted to a bracket under the side member of the frame. At the left side the differential brake drum is straddled by a frame bolted to the gear case and to the left side frame member. The front end of the gear case is hung by a single rod from a large tubular cross member of the frame. The clutch cone itself is mounted loosely on the sleeve which gives it a central bearing on the clutch shaft, and transmits its torsional effort through three pins near the hub, on which pins it somewhat loosely slides into and out of engagement with the flywheel. A number of other features of interest about this car will have to await a further description.

In the matter of body design, not much can yet be said, as many of the expected new bodies were still on their way when the Show opened. At the Bolleé stand, however, was seen a very sumptuous "berline" with side-entrance, a rear inside seat for three, two swiveling side seats just back of the side doors, and a folding extra seat vis-a-vis to the others. A small auxiliary battery under the rear seat, reached by a panel in the back, gave current to two small interior electric lights and a third over the chauffeur's seat. A similar arrangement of seats was seen in a large side-entrance tonneau at the Decauville stand, this body being almost extravagantly roomy. At the C. G. V. stand was seen a landaulet with the motor placed fore-and-aft exactly as in the regular car, but under the operator's seat. It did not look very accessible, though doubtless in a town vehicle of this sort, which is used for only an hour or two at a time, and is always tinkered by the chauffeur and never by the owner, accessibility is not such an important consideration. Needless to say, the side-entrance has completely ousted the rear-entrance tonneau, though this has not always been achieved without adding undesirably to the length of the wheel-base.

As many of the new models had not arrived on the opening day, a discussion of their points of interest must be deferred until later issues.

From the Driver's Point of View.

ON the cars which are on exhibition at the Importers' Salon the comfort and convenience of the driver have evidently been the subject of much study on the part of the designers. Driving one of the new models is so easy that it hardly deserves the name. In fact, "steering" expresses nearly everything which the driver does.

The control of the throttle and ignition in nearly all cases is accomplished by means of handles on the steering wheel or immediately beneath it on the column. With this arrangement the operator is not compelled to move his body when changing ignition or gas.

Practically all the cars have motors of sufficient power to drive them on the high gear most of the time, which presupposes a sensitive and highly efficient carbureter. Hence the "automatic" carbureter is seen on all cars.

Owing to the possibility of being able to use the high gear so much, less gear changing is required. The motor revolves slowly and the wear and noise are reduced correspondingly.

The gridiron or Mercedes type of gear-change seems to be no more popular than the Panhard or "progression" type. The pawls which fit in the notches on the quadrants of the gear levers are almost all actuated by a rod from a button in the center of the lever. Usually it is not necessary to press this button, except when changing back from a high to a low gear. When changing from a low to a high gear, it is only necessary to push the lever ahead, without depressing the button.

Handbrakes, which "push" on are about equally as numerous as those which "pull" on. These brakes can be applied so as to lock the wheels with practically no effort on the driver's part. Foot-brake drums are larger in diameter than formerly. In several cases double foot-brakes are fitted. The pedals for actuating these brakes are very close together so that the foot can apply both at once if required.

Pedals, both for clutches and brakes, are practically all of the "push ahead" type, the "press down" or piano type is very little in evidence. "Push" pedals have a greater range of motion than "press" pedals, and consequently do not have to be so accurately adjusted.

In several cars provision is made for the gradual taking up of the load, by the clutch. Engaging the clutch, or "clutching," on cars fitted in this manner, is a less delicate operation than on cars equipped with the ordinary cone clutch. The general design of the clutch remains the same. Springs are used under the leather in some cases, and in another case noted, part of the rim against which the leather rubs, is made so as to act as a spring. In yet another case, springs are interposed in the shaft between clutch and gear-box.

The "sprag" seems to be coming into favor again. On a few cars ratchets are fitted, and on one car the ratchets act on the teeth of the sprocket on the rear wheels. With a car equipped with ratchets, great care would have to be exercised to prevent the ratchets from getting into engagement whenever the car was being driven backward. Should this happen, it might result in breaking a gear, shaft, or chain, or in smashing the ratchet or pawl.

Lubrication troubles seem to be minimized inasmuch as almost all the cars have force feed oilers in connection with sight feed drips.

Nearly all the oil pumps are driven positively by means of shafts or rods and not by belts, as formerly. For the fan-drive the flat belt, which is wider than formerly, is superseding the round belt. Jockey pulleys, under spring tension, are fitted to take up the slack automatically.

Bonnets are made so as to be easily removable, and yet not rattle or come loose. They are usually held in place by means of spring clips.

Magnetos, water pumps and circuit breakers are in most cases very accessible.

Many cars have a metal "apron," which effectually shields the mechanism from mud and grit, and prevents water being splashed into the inlet pipe or on the electrical parts of the motor.

Relief cocks are very usually fitted on the larger cars. Squirting kerosene through these cocks greatly reduces the labor of turning a motor when starting cold.

On several cars the compression may be reduced when starting the motor, by means of a handle in front, which acts on the exhaust valves.

The tendency seems to be toward longer wheel-base and equal size wheels back and front. The larger base is, of course, not so manageable when turning in narrow streets, or going around corners.

In many cases the gasoline tanks can be filled without disturbing the passengers. In such cases a pipe is carried from the tank to some point outside the frame, where it is easily accessible.

There are doubtless other new features of interest to drivers on the cars, which have not yet arrived at the Salon, but which are expected to arrive almost daily. They will be noted in detail on subsequent visits.

SELDEN LICENSE FOR PANHARDS.

Panhard automobiles will hereafter be sold in the United States with Selden patent license tags attached, the firm of Panhard & Levassor, of Paris, and A. Massenat, the New York agent for the firm, having made license arrangements with the Association of Licensed Automobile Manufacturers, owners of the Selden patents. Infringement suits were in progress against the manufacturers and importers of the Panhard cars; but proceedings have been stopped by the decision of the defendants to allow a decree and judgment to be entered against them. Royalties on cars imported since January 1, 1903, have been adjusted, and owners of such cars will be furnished license tags on application to the agents.

The same is true of Mercedes machines, whose licensing under the Selden patents has already been reported in these pages.

An English automobilist recommends flowers of sulphur as an excellent thing to dust over tires when storing them away.

GORDON BENNETT COURSE SELECTED.

Circuit for 1905 Race Selected in Beautiful Mountain District of Auvergne, South of Paris — French Club Decides to Hold Open Race at Same Time.

Special Correspondence.

PARIS, Dec. 29.—The choice of a circuit for the Gordon Bennett race was never watched with so much interest as has been shown in France for the last few weeks. Now, however, that the decision of the Automobile Club of France has been made known, the interest is quite of another order. For some time there has been a growing feeling among French automobile constructors against the Gordon Bennett regulations. The race, they say, has now attained to an importance which it ought never to have had; and the gains and losses are not in proportion to the respective interests of the nations involved. France, as the leader of the automobile nations, might be deprived of the cup by some trivial accident, and this would mean to her commerce a loss far greater than would be felt by any other nation. Representation in the race, they maintain, should in justice be proportionate to the productive capacity of the nations engaged, and a nation capable of producing but three cars fit to enter the race should not be given equal chances with a nation possessing fifty firms all capable of building cup defenders.

France to Have an Open Race.

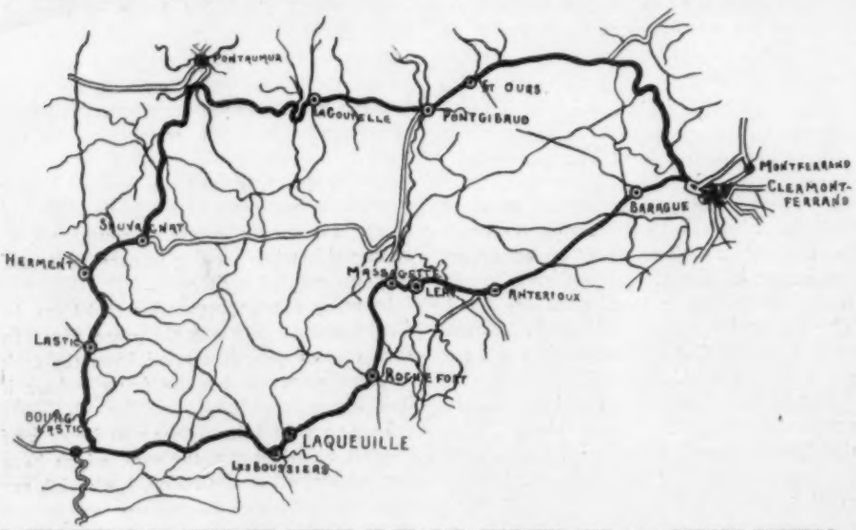
At the meeting of the Committee of the Automobile Club of France, held last night, after dealing with the choice of a circuit and the regulation of the 1905 race, the following important resolutions were adopted:

1. For the year 1905 the Gordon Bennett Cup shall be run at the same time as an international course to be named the Grand Prix of the Automobile Club of France, and in which all builders shall have an equal chance, to whatever nation they may belong.

2. For 1906 and the following years, the Automobile Club of France shall not take part in the Gordon Bennett Cup races under the present regulations.

3. In 1906 and the following years, the Automobile Club of France will organize an international race in which all constructors, shall have equal chances, no matter to what nation they belong. This course shall be called the Grand Prix of the Automobile Club of France.

This bold decision of the Automobile Club of France has been received with enthusiasm by all interested in the automobile industry, and already the new international race has been endowed with a prize of $20,000 by one of the automobile papers, and doubtless other prizes will be given by the municipal government.



[SKETCH MAP OF AUVERGNE COURSE IN FRANCE, SELECTED FOR 1905 GORDON BENNETT.

The regulations for the new race have not yet been formulated, but the committee has provided for the 1905 Gordon Bennett. On the recommendation of the sporting committee the Auvergne circuit was adopted, the only objection being that of Mr. Brasier, who declared that the route was too dangerous, but who finally yielded to the opinion of the majority.

Description of the Course.

The circuit chosen has as its central point the town of Clermont-Ferrand, the ancient capital of Auvergne, 260 miles south of Paris, with a population of about 52,000. The country is wildly beautiful and mountainous, with a hard soil and large but dangerously hilly roads. The town of Clermont can amply provide the accommodation necessary for the large numbers of visitors, and has shown itself most anxious to have the race in its neighborhood, the municipality, together with Mr. Michelin, having offered a subvention of $40,000 to the Automobile Club of France. All the country around is but sparsely populated and everywhere there is a sympathetic attitude toward automobilists.

The starting point is about 2½ miles from Clermont, at an altitude of 698 meters above the sea level, and the road mounts in zigzag manner for five miles to La Baraque at an altitude of 1,260 meters. On the Col de Moreno there is a perfectly straight run of 2½ miles, and the road gradually descends to Rochefort, 705 meters above sea level. At 500 meters from Rochefort is the most difficult turn in the whole circuit, the road having a 10 per cent. ascent and a sharp turn. Its difficulty can be judged by the fact that Réné de Knyff, when investigating the road a few days ago, was deceived by the acuteness of the angle and had to use his reverse gear in order to get around. In the 1900 Tour de France not a single automobile could surmount this difficulty at the first attempt. Leaving Rochefort, at 705 meters, the road mounts for 6½ miles until it reaches an altitude of 1,093 meters. In Laqueuille there is a series of sharp turns, and from there to Bourg-Lastic there is an excellent road descending to 752 meters above sea level. At Bourg-Lastic a sharp turn to the right, and the departmental road is entered upon. Although not so wide as the national road, there is still sufficient room for two cars to pass. It has been decided, however, to remake the road entirely from Bourg-Lastic to Herment. The nine miles which separate these two towns are over an almost level but winding road, beginning at 752 meters and mounting to 794 meters. At Herment there is another very sharp turn to the right, and as far as Tontaumur the road alternately rises and descends. From Tontaumur to Bromont the road ascends all the time with many sharp turns, and then descends gently to Tontgibaud. After Le Bouchet, where there is a level crossing, the road begins to descend. There are but 13½ miles between this point and the finish at Clermont, ten of them being entirely downhill. There are again some sharp turns, but compared with those on the first part of the circuit, they are not at all difficult to negotiate.

The Difficulties and Advantages.

It will be seen that the circuit is a most difficult one, and will not offer a second's rest to the chauffeur. The ascents, although many of them in the first part of the course have 12, 13, 14, and even 17 per cent. rise, no longer offer any difficulties, but especial attention will have to be paid by both constructors and chauffeurs, to the many sharp turns, and the brakes must by no means be neglected. The road everywhere is wide, attaining 14 meters in many places, and the circuit offers no neutralizations.

Entry Fee $2,000 for Each Car.

The present entrance fee for the eliminatory races of $2,000 for each automobile, was considered by the constructors as too high, and they proposed that it should be reduced to $1,000. The committee, how-

ever, could not accept this reduction, but maintained the original figures. The advantages of the new international race will doubtless compensate the constructors for the maintenance of the high entrance fees. It was decided, also, that the constructor entering an automobile should have constructed both the engine and the transmission gear. Measure will be taken to prevent, as far as possible, changes of chauffeurs after entry for the eliminatories and to assure French cars being driven by Frenchmen, and also to prevent Frenchmen driving foreign cars, either in the Gordon Bennett race or in foreign eliminatories.

PARIS, Jan. 2.—The decision of the A. C. of France with regard to the Gordon Bennett race, and the organization of a Grand Prix of the Automobile Club is causing much discussion here. There is not a feeling of universal satisfaction, although French builders are fairly well pleased with the new move, and already L. F. Edge has sent in a protest to the Automobile Club of Great Britain and declares that if the race for the Gordon Bennett cup is included in the Grand Prix the Napier cars will not compete.

In addition to the money prize of $20,000 offered by *L'Auto* to the builder of the car gaining first place in Grand Prix, $2,110 have already been subscribed towards second and third prizes.

The course, which measures 134 kilometers (84 miles) will be run over four times the total distance for the Gordon Bennett, will be 336 miles.

Characteristic Turn in Road Between Rochefort and Laqueuille.

Road Along La Baraque Valley, About 100 Meters Deep on Right.

First Straight Stretch After Start from Clermont, Three Miles Long.

Messrs. Brasier, Thery and Caillos Going Over the Course.

The Start at the Four Roads, in Clermont-Ferrand.

Road Through Rochefort, with Sharp Turn to Right at Street End.

VIEWS OF FRENCH COURSE JUST SELECTED IN AUVERGNE DISTRICT FOR 1905 GORDON BENNETT AND NEW GRAND PRIX RACES.

The End of the Paris Show.

How the Exhibits Are Quickly Removed and Where They Will Go—Paid Admissions During Show, 320,000.

Especially Reported for THE AUTOMOBILE.

PARIS, Dec. 26.—Last night at 11 o'clock the seventh annual Salon closed its doors. To-day at 4 o'clock nothing remains of the most brillian automobile exhibition that has ever been held in the French capital. The work of removal was commenced without a moment's delay, and this afternoon there is not a single stand intact. For arrangements for removing the exhibition are admirably planned, carts being able to enter by five large doors, load up and pass out freely. This has enabled the work to be carried on with great rapidity, and not only will nine-tenths of the cars and other exhibits have disappeared this evening, but the decorations also are in many cases dismounted. A large number of exhibitors have their works and stores in Paris and the immediate neighborhood; thus the majority of the cars are mounted on horse-drawn wagons and taken back to the factory. Although in most cases the wagons enter the Palace and load up by the side of the stands, many exhibitors have taken the tires off their cars, wheeled them out into the street, and there loaded them onto the wagons, so that all around the Palace to-day are vehicles of all kinds engaged in transporting in all directions the units of the great exhibition. The heavy automobile wagon, furniture moving vans, and even ordinary cabs loaded inside and out with tires and automobile accessories, have been requisitioned. Few of the cars leave the Salon on their own wheels, although many of the electric vehicles are towed away, and, excepting the commercial vehicles, few are driven off under their own power.

Sales Larger Than Ever Before.

Inquiries at the different stands reveal the fact that only a small percentage of the cars exposed go back to the factories Many have, it is true, returned to the factories to-day, but it is only to be touched up prior to delivery to purchasers. The number of cars sold during this year's Salon is far in excess of that of any previous year, and all the exhibitors express themselves as fully satisfied with the financial results of the show.

The Decauville exhibit is now scattered to different quarters of the world. The 24-28-horsepower double phaeton has gone back to the works to be packed in cases for sending to its American owner. The handsome *berline de voyage* has been sold for Germany, a similar car has gone to Holland under its own power, and the two limousines have been sold for France. During the Salon orders were booked for sixty cars for England and fifty for America. The decorations have gone to the Brussels show.

The Pope-Toledo electrics all stay in France, and after having been relieved of their tires were towed away this afternoon. the gasoline cars, including the handsome Pullman, are being solidly packed in waterproof cases for shipment to America. The Westinghouse Company is sending the 24-28-horsepower limousine to America, it having been bought by Hon. W. I. Buchanan of Buffalo. The chassis on exhibition goes back to the works to be touched up, and in a few days will be delivered to its owner. This firm states that it has cars on order for two years production.

The Olds Company is thoroughly satisfied with the result of the Salon, and states that its sales this year show a 50 per cent. increase. The 10-horsepower car has caught on particularly well and had a very large sale. The chassis of this type will be sent over to the London shows, as will also the railway inspection car shown at the Serres. The other cars will be delivered to their purchasers. The decorations are being stored for probable use next year in the annex at the Serres.

Exhibits Coming to New York.

The Hotchkiss exhibit will all go to the New York show, the same decorations being used there as here. The three-quarter coupé has been sold to G. A. Kessler, of New York, and will probably be delivered after the New York show. Henry Fournier, the French agent for the Hotchkiss car, leaves Paris for New York on January 4.

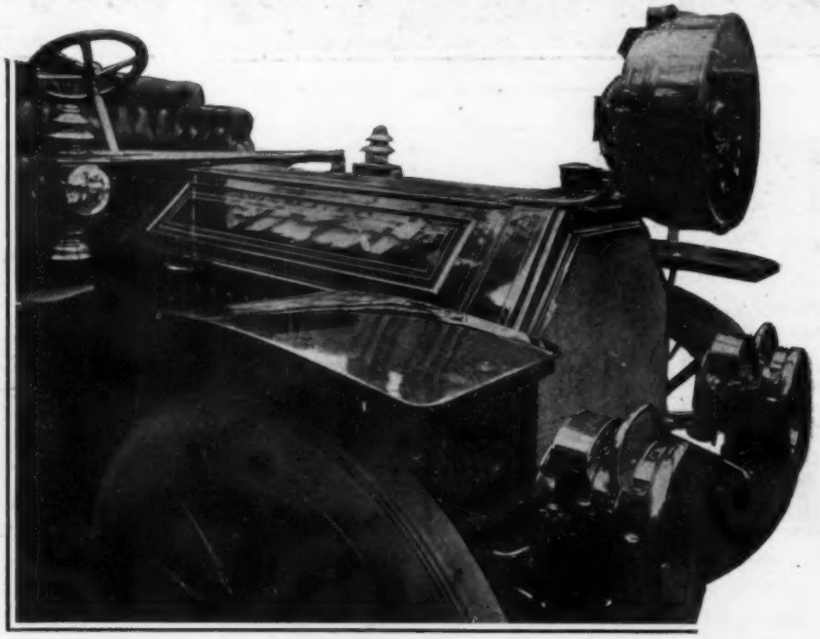
All the cars on the Léon Bollée stand have been sold. Three of them are for the United States; a 40-horsepower *voiture salon* for Mr. Vanderbilt, of New York; a 40-horsepower *berline de voyage* for Mr. Elsworth, of New York; and a 20-horsepower double phaeton for Edgar Scott, of the same city. These three cars will be wrapped in waterproof packing and shipped in cases. After being exposed at the New York show they will be delivered to their respective owners. Mr. Stern, the American agent of the company, who leaves for New York early in the new year, has received during the Salon more than twenty orders for 40-horsepower cars for New York alone. So great is the demand that they can guarantee no further deliveries before the end of November.

The Dietrich exhibit has all been sold, and goes direct to the different purchasers, the cars for the New York show being sent from the works. All the F.I.A.T. exhibit is being packed in cases to be sent by rail to the Brussels show, and from thence to Berlin. The Kriéger mixed cars also go to the Berlin show, the delivery wagon being sent back to the factory to serve as a model.

The Dion-Bouton, Peugeot, Panhard & Levassor, Renault and Mors exhibits all go to the different agents who had bought them up in advance. All the Mercedes cars on exhibition, with the exception of a 60-horsepower racing chassis, have been sold, and go direct from the Salon to the purchasers.

Exhibits Going to London Shows.

All the Clément exhibit, including the decorations, goes to the London shows, and the Cottereau firm is sending two of the



FRONT OF NEW 50-HORSEPOWER PANHARD EXHIBITED AT THE PARIS SHOW

The car would hardly be recognized by old Panhard owner, with the form of hood and cellular cooler approximating the Mercedes type. Note the five front lights, with bracket for top headligh attached to top of radiator, and novel form of mud fenders.

OLDSMOBILE AND MESSRS. FOURNIER AND ALLARY AT END OF 3,000-MILE TOUR OF EUROPE, CONCLUDED IN PARIS DECEMBER 20.

cars from here to be exhibited in England. The Société Manufacturière d'Armes de St. Etienne is also shipping the whole of its exhibit over in cases to the London shows.

The English exhibitors all declare themselves pleased with the financial results of the show. The Argyll Company will pack all its cars in watertight cases and ship them for the Olympia show; the decorations of the stand will also be used again in England. The Wolseley car with 6-horsepower horizontal engine has been sold to an American agent, and will probably be exposed at the New York show. A 12-horsepower landaulet has been sold for delivery in London, and the other of the chassis, together with the decorations and a launch engine, are crated and sent to England for exhibition at the London shows.

The body builders all report good business, and very few of the exhibits in this section will find their way back to the stores. The Audineau Company will send some of its exhibits to American customers, and other cars will go by their own power from the Salon to the customer. The Benzelin exhibit and the Lamplugh vehicles have all been sold and are delivered by different means direct to the customers.

NUMBER OF VISITORS TO THE SALON.

Some figures have just been published regarding the number of persons visiting the Salon. During the whole period, 320,000 people paid for entry, this being 60,000 in excess of last year's record. The largest number entering on any one day was 54,000, on December 18; on the corresponding date last year the number was 37,000. On this day the crowd around the entrances was so great that hundreds turned away rather than struggle to gain admission. Although the Salon did not close until 7 o'clock, no more persons were allowed to enter after 4 o'clock, and those inside had much difficulty in getting out, owing to the crowds around the doors. Insurance against fire had been effected for the sum of $6,000,000, and covered 600 or 700 cars and chassis. The electric lamps fitted up by the organizing committee numbered 80,000, and the number fitted up at exhibitors' expense may be estimated at 150,000.

TWO INDUSTRIAL CUPS.

Tables Turned on M. Michelin by Body Makers and French Club in Doubt.

Special Correspondence.

PARIS, Dec. 29.—Great excitement was caused during the last days of the Paris Show, when it was published that Mr. Michelin, the tire-maker, struck by the fact that in their race for comfort, the body-makers were building real houses on the powerful chassis now made, and that the whole load, often exceeding two tons, had to be carried by four unfortunate tires, at a high rate of speed, declared that he was unable to supply tires to withstand the strain for any length of time, although he had tried all sorts of experiments. Consequently, he offered to the Automobile Club of France a cup, to be called the Michelin Cup to be competed for annually by the body makers, the cup to be the property for the following year, of the maker who produces the lighest and most comfortable body, the jury being named by the Automobile Club.

This cup was at first received with enthusiasm by every one, including the club, the body-makers alone being rather sore of the compliment.

Mr. Michelin filled the measure last week at the great gala evening, which was given to celebrate the closing of the show, when, in his speech after the banquet, in which he gave the reasons which caused him to establish his cup, he told some hard and probably exaggerated truths to the body-makers, and emphasized his inability to supply suitable tires.

This time the body-makers were at the end of their patience, and a thing occurred to them which they had not thought of before—that, although Mr. Michelin is certainly somebody in the tire business, he is not everybody, and that some one else might succeed in doing what he could not do. In consequence, on the following day, the Syndicate of the Body-Makers offered the Automobile Club a cup to be competed for annually, and to be the property for the following year, of the maker of the best tire.

Mr. Michelin, who never dreamt of such a return of things, now wishes he had kept still that day, and the Automobile Club sees its finger between the bark and the tree, with two unfortunate cups on its shoulders. No need to mention the joy of the other tire-makers, who see a fine chance for advertising.

DE DION CUP FOR CONSTRUCTORS.

Special Correspondence.

PARIS, Jan. 2.—At the last meeting of the Automobile Club of France a proposal was brought forward to establish an international challenge cup to be competed for by teams representing constructors, instead of teams representing nations. The originator of the idea, the Marquis de Dion, vice-president of the culb and head of the firm of De Dion-Bouton, has for a long time been desirous of creating a challenge which would be a perfect test of speed combined with regularity. His idea has been handed over to the sporting committee of the Automobile Club to be put into practical execution, and doubtless in a short time the De Dion challenge will be a reality.

The main lines of the scheme are that the race should be run over a distance of at least 625 miles by teams of three cars, each team representing one constructor. All the cars comprising the team would count in the result; thus regularity of running would be ensured. All repairs must be effected *en route* by the ordinary means usually carried on a touring car. As to tire repairs, this has yet to be considered. The race would be run each year in the country of the constructor whose cars had won the cup the previous year.

Special Motors at the Paris Show.

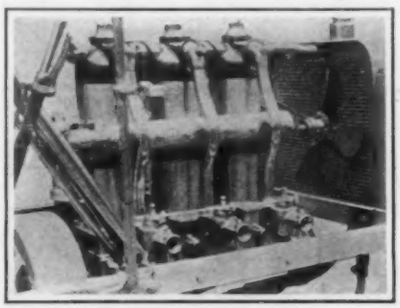
Especially Reported for THE AUTOMOBILE.

PARIS, Dec. 27.—In the exhibits of the Serres, where the machines were shown in operation, several engines of principles differing more or less from general practice were shown. Those which can be considered as types of their class will be described without considering whether they are or are not improvements on the standard four-cycle type, leaving the reader to judge for himself.

LEGROS TWO-CYCLE ENGINE.

The two-cycle type of engine, which seems to have difficulty in getting on the French market, is shown only in one instance applied to a car. This motor is entirely different from what has been used on boats or elsewhere up to the present date, since its most noticeable feature is that it does not use the crankchamber for a compression or an admission chamber, so that multicylinder engines can be made, the crankcases of which do not differ from those of the usual four-cycle engines; nor does the engine use an auxiliary pumping cylinder.

A fixed piston, held in position by suitable lugs to the crankcase, is used as a slide for the usual reciprocating piston, which forms a chamber the volume of which is varied by the displacement of said chamber on the fixed piston. The engine being of the vertical type, during the down stroke of the moving piston the following phenomena take place in the combustion chamber: Explosion, expansion and exhaust by symmetrical outlets at the bottom of the stroke; in the meantime the mixture aspired in the piston chamber is compressed and enters the explosion chamber by a valve in the top of the piston. The inlet to the piston chamber and the exhaust from the explosion chamber are by suitable ports in the cylinder walls. The ignition is by jump spark, and the time of ignition can be varied by the usual four-cycle system. An automatic carbureter is



LEGROS TWO-CYCLE ENGINE.

supplied with the engine, and the governing of the engine is by a throttle and the spark.

DOUBLE ACTING GAS ENGINE.

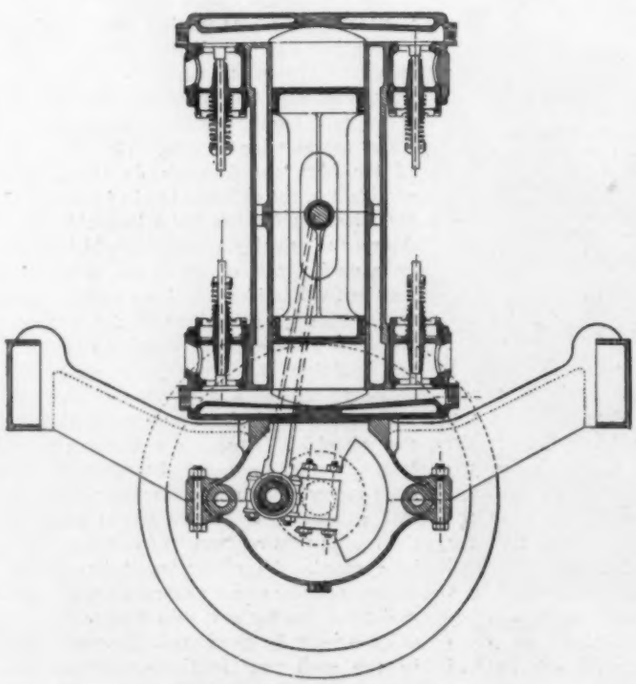
The Janus engine is a motor in which each cylinder can be considered as formed of two cylinders of the usual four-cycle construction with symmetrical valve, bolted together by the open end, side slots being provided for the passage of the piston pin, which on either outer end carries a connecting rod which drives the crankshaft in the usual manner. The covers of the connecting rod cases are used as stays to bolt the cylinders to the crankcase, as shown in the illustrations.

The piston is very long, but has short friction surfaces, so that although it does not play in any way in the cylinder, there is very little lost power due to friction. As the connecting rods are long, they insure efficiency. The explosions follow each other in one group of two ordinary cylinders, so a motor with two groups is as well balanced and as smooth running as the usual four-cylinder engine, while being shorter and, it is claimed, lighter.

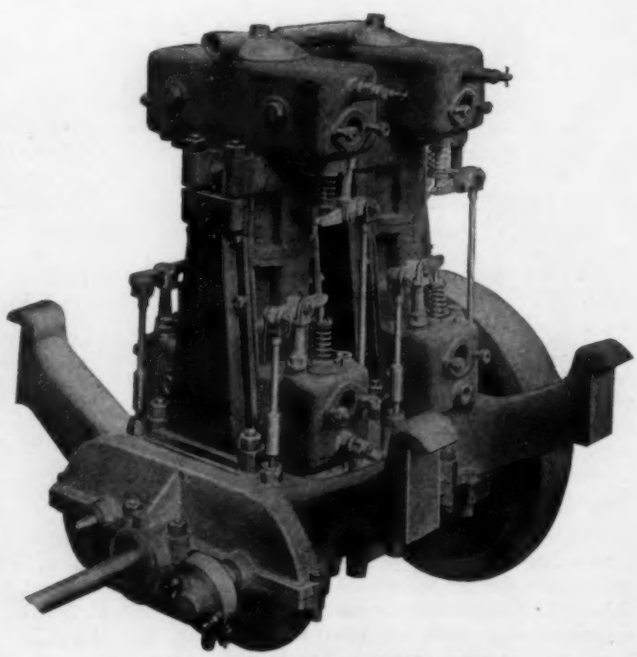
A four-group engine (that is, one equivalent to eight cylinders) of 100 horsepower of this type has been ordered by the owner of *Rapee III*, the record-holding auto boat, now fitted with a 110-horsepower Panhard engine, that is to go in another hull. The comparison between the performances of the boat before and after the change will be interesting.

AN OSCILLATING ENGINE.

There was an oscillating engine—the Primat— in which four cylinders are disposed on a circle as at O O_1 O_2 O_3, two cylinders being cast with their heads opposed, as M and M_1. In the center of the circle formed by the cylinders there is a bearing on which oscillates a double tee-shaped casting P. At the four branches of this beam are held rigidly the four pistons p. At the lower part of the casting is a projecting lug from which a connecting rod R transmits the motion to a single throw crankshaft CK. The valves are located at M and M_1, one inlet and one exhaust in each cylinder; the cylinders work on the usual four-cycle principle and fire successively, so that the engine has



SECTION OF CYLINDER OF JANUS DOUBLE-ACTING ENGINE.



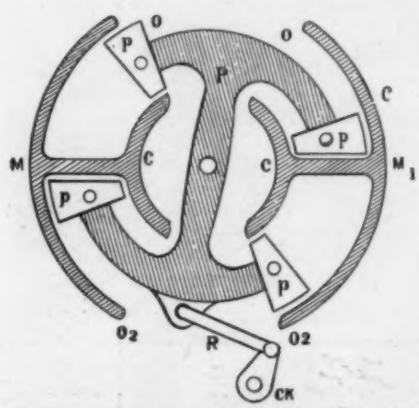
JANUS TWIN CYLINDER DOUBLE-ACTING FOUR-CYCLE ENGINE.

the same flexibility as the usual four-cylinder four-cycle motor. The cam shaft is placed crosswise from M to M_1.

It is claimed that this engine is less bulky for the same power than the usual engine, and that there is very little lost power, since the pistons do not rub on the cylinder walls, the beam supporting them rigidly and the only friction being that of the piston rings.

CONSTANT COMPRESSION ENGINE.

A constant compression engine of remarkable flexibility is exhibited by a Swedish concern. In this engine the compression is constant, no matter what the throttling may be, and the mixture is always rich. To obtain this, an extra valve V, opening direct into the atmosphere, is fitted on the side of the cylinder, having in front of its opening a cast projection C, which forms a separate chamber M when the piston is on top of its travel, as shown by the



TRANSVERSE SECTION OF PRIMAT CIRCULAR FOUR-CYLINDER OSCILLATING ENGINE.

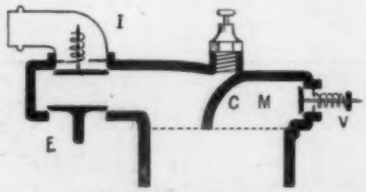
dotted line. The exhaust and inlet valves E and I are of the usual type, the inlet being either automatic or mechanically operated. A very positive throttle, consisting of a barrel forming an air-tight joint with its seating, is placed close to the inlet valve. Supposing that the engine is rotating at high speed, and that the throttle be progressively closed, the resistance to the suction through the inlet piping will be increased, and as the heavy flywheel of the engine prevents it from changing its speed too quickly, the auxiliary automatic inlet valve will admit pure air, which, on account of the wing C, will not mix with the explosive gases, so that the explosion will always take place, even if there is a very small quantity of mixture, the air staying, as the tests proved, close to the piston and not mixing with the gases. The advantages obtained are said to be the following:

1. As the engine is required to work to its maximum power and speed only in very few instances, the outside air sucked through V keeps it cool to a certain extent.

2. A short period of overloading is not harmful, as even if overheating should take place, the air admitted subsequent to this period would soon cool it off.

3. There is no need of varying the spark timing, as the mixture is always constant.

4. There is no need for a mechanical governor, as the air valve spring can be adjust-



VALVE ARRANGEMENT OF SWEDISH CONSTANT COMPRESSION ENGINE.

ed so as to open at any given speed, which is thus the limit for such an adjustment.

5. The speed can be varied without altering the power or the power without changing the speed, thus doing away with most of the change-speed gearing, which is retained only for the reverse and for exceptional cases, in the form of a low gear.

6. The throttle lever is the only one required.

7. The fuel consumption is greatly reduced and is in absolute proportion to the power obtained.

8. The cylinder can be made of large size so as to be able to obtain high power in emergencies, while the power at normal or low speed running can be as small as wished; and the normal engine speed being thus kept rather low, there is less wear and friction.

Types of French Commercial Vehicles.

Especially Reported for THE AUTOMOBILE.

PARIS, Dec. 29.—Among the light commercial vehicles exhibited in the Annex of the Automobile Salon which came to a brilliant close on Christmas Day, the Decauville delivery wagon is representative of the usual Parisian type of delivery body fitted on a two-cylinder chassis, with a slightly lower gear than on the pleasure cars. The body has a locking door at the rear, and a step. It will contain about forty cubic feet, and the vehicle has a weight carrying capacity of three-quarters of a ton. The makers do not guarantee that the advantage of the car—that is, low cost of upkeep in tire and current repairs, and quickness of delivery—will be kept up if the car is overloaded in regular service.

THE BRILLIÉ OMNIBUS.

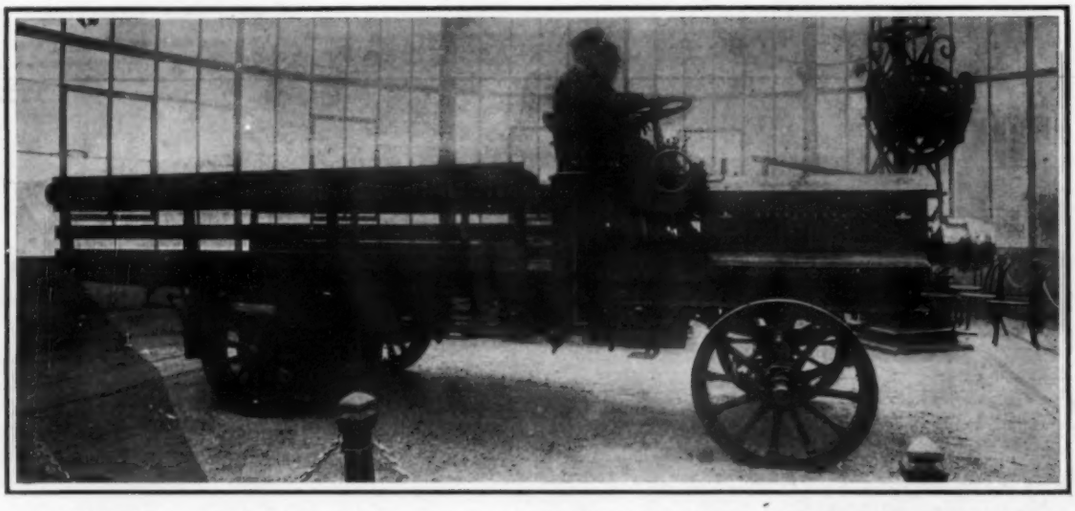
Of the omnibus type, the most perfected and apparently the best model shown, is the Brillié, designed by Mr. Brillié, designer of the Gobron-Brillié cars and patentee of the double piston engine. It is made at the great French artillery works of Schneider, of the Creusot, which is a good guarantee as to the material and workmanship.

This omnibus is mounted on a chassis which can be used equally well as a truck chassis or for any heavy load transfer purposes. The frame is made of exceedingly strong angle steel, forged to shape at the corners, and strengthened further by flitch plates 3/8 and 1/2 inch thick. The cross members and subframe are of the same material, the whole being very stiff.

The engine has four cylinders, developing 18-26 horsepower and is strongly built, especially for hard service. It is placed in front under the footboards which replaces the usual bonnet. The steering is irreversible by wheel. The gasoline tank is used as a dash in front of the driver, a supplementary tank being allowed for under the seat. The radiator is of sufficient capacity not to require any special water tank. The valves are all mechanically operated, the inlet valves being placed on top of the cylinders and actuated by tappets. They

FRENCH LIGHT COMMERCIAL VEHICLE, DELIVERY BODY ON TOURING CHASSIS.

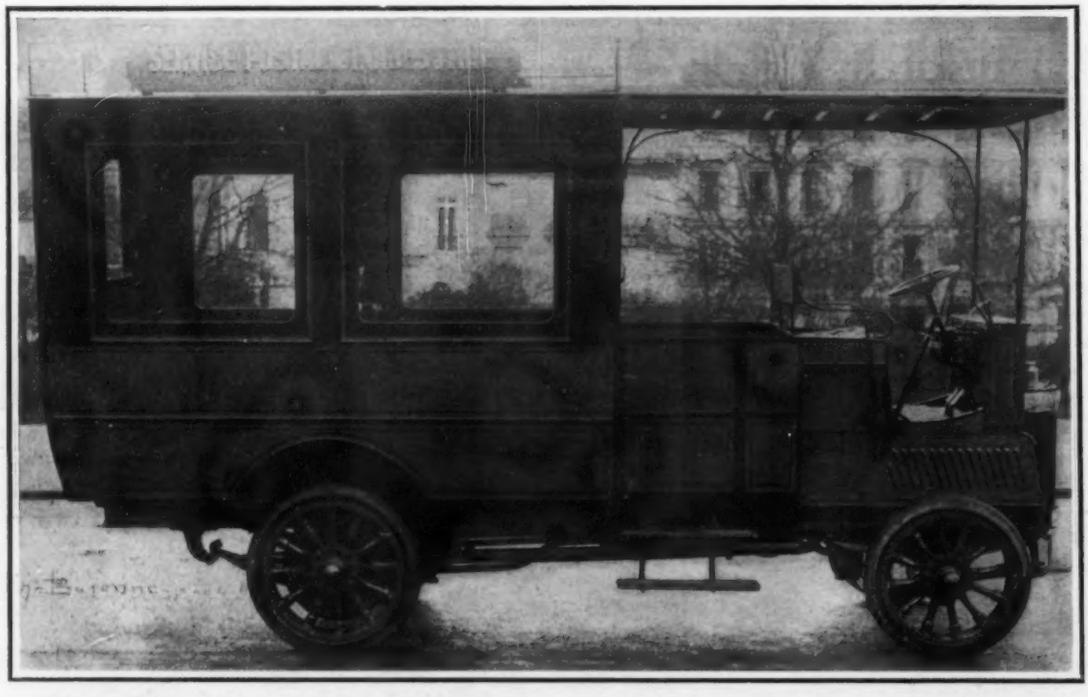
can be removed in a few seconds by unscrewing a yoke, without disturbing the pipes. Drive is by cone clutch, onto an ordinary change-speed of the sliding gear type considerably reinforced, and from there through propeller shaft to a rear axle of special design. There is a strong solid forged dead axle some 3 inches in diameter, curved back abruptly inside the spring seats, to form an axle similar to some very open U-shaped front axles, but laid horizontally instead of vertically. Bolted in the center of this axle is a large cast-steel casing, containing the large bevel gear and pinion, and the differential. Each side of this casing is cast integral with each of its vertical halves, strongly ribbed and containing a cross countershaft carrying a small pinion at each end, which meshes with a large spur gear, cut on the inside face of the brake drum bolted onto the rear wheel. This drum can be seen on the illustration. Stout radius rods, which can also be seen on the photograph, extend from the axis of the rear wheel spindles to the brackets on which the rear end of the front springs are shackled, and give a nearly vertical spring action, eliminating almost all lengthwise play on the propeller shaft. These two radius rods are about four inches in diameter, and are made of steel tubing, cold drawn, pinned and brazed at both ends. The springs are unusually heavy and strong, but being made of a large number of thin plates of great width, are smooth in their play, and very sensitive to as little as the weight of one man. The operating levers are as usual on a pleasure car, and their situation is plainly shown by the photograph. The special omnibus shown is used for a sort of a mail service between distant isolated towns in the south of France, one man only being required for the service, as he acts both as driver and fare collector, this being made possible by the situation of the platform gate just behind his seat.



HAGEN 24-H.P. TRUCK, WITH PAWL AND RATCHET DRIVE FROM CONNECTING ROD WITH ECCENTRIC THROW

HAGEN RATCHET DRIVEN TRUCK.

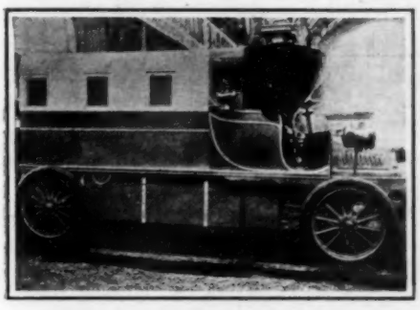
A large truck that is of especial interest mechanically, is the Hagen. A 24-horsepower engine is fitted in the usual way under the hood, and the chassis has side-frames, but the driving mechanism resembles the system used by the Union Mo-



BRILLIE-SCHNEIDER 18-26-HORSEPOWER OMNIBUS, FOR POSTAL PASSENGER SERVICE IN SOUTHERN FRANCE.

tor Truck Company, of Philadelphia, and exhibited at the Madison Square Garden show two years ago. An eccentric driver by the engine acts on a connecting rod, which is articulated at its other end to the end of a long hanging lever, which is thus caused to oscillate. This lever in turn, by means of a second rod ending in a pawl, rotates a large ratchet wheel, which drives on the rear axle. The reverse is obtained by the usual gear combination. The changes of speed are made by varying the leverage of the two rods on the oscillating lever by varying their points of articulation, so that the pawl jumps one, two, or even five teeth of the ratchet for each oscillation.

The frame is of angle steel, the front wheels are steel shod, while the rear are either on solids or on steel as preferred, the makers recommending steel in preference



LATIL HORSE TRANSFER WAGON.

to rubber. The truck has produced remarkable performances, and has now been on the market several years, a great many being in use, especially in plants where the shops are very distant and where the materials have to be taken from one shop to the other.

A Fore-Carriage Revival.

An old idea revived in a rather novel manner and which seems satisfactory is that of the "Avant train Latil," being a complete front axle with a frame sprung on same which carries a two-cylinder engine with the usual type of sliding gear transmission. This, complete with the driving and steering front wheels, and the entire mechanical plant of a car, can be fitted in place of the front wheels of any commercial horse-drawn vehicle of good size, the frame being rigidly bolted on the fifth wheel of the carriage, and on the side reaches of same. The engine shaft runs in the same direction as the axle and spur wheels, from the change-speed gear drive, a live cross shaft ending in two universal couplings above the center of the usual type of steering knuckles. These universal joints drive a short length of shaft, which turns with the spindle of the wheel in the steering action, being supported by a bearing integral with the wheel spindle forging. These short shafts terminate in a small spur pinion which drives a large spur wheel forming a brake drum on the artillery wood wheels shod with solid tires.

A race-horse transfer van fitted with this Avant-Train is quite a novelty. The door at the rear can be lowered, being hinged at the bottom instead of the sides, so as to form an incline. The floor of the van is close to the ground and the inside is entirely covered with thick alfalfa matting, except for the ceiling, so as not to injure the horses in case they take fright or are shaken too much, when the car goes across pasture fields, as it is supposed to do often in service. A removable light partition can be fitted lengthwise inside so as to accommodate two horses in case of urgent need. The top half of a door can be left open in service, to allow the driver to watch the horses in case he is alone, and there is space for oats and stable accessories in a large locker under the horse's head.

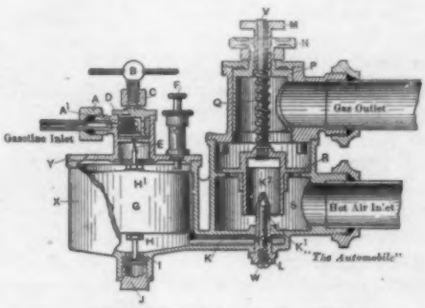
Experience of French Builders.

The experience of Franch makers in the industrial vehicle line has been that regular touring car chassis are to be used for the purpose only when they do not exceed 12 to 15 horsepower, and when the load to be carried does not exceed a ton, while an 8-horsepower engine is just as satisfactory as a larger one, in the matter of efficiency in service, while costing much less in running expenses and initial cost. It has also been found that for loads above a ton in regular service, requires specially studied cars that are entirely unsuitable for other purposes and must be mounted on solid tires, or, if possible, preferably on steel tired rims, the pneumatics not to be used under any consideration.

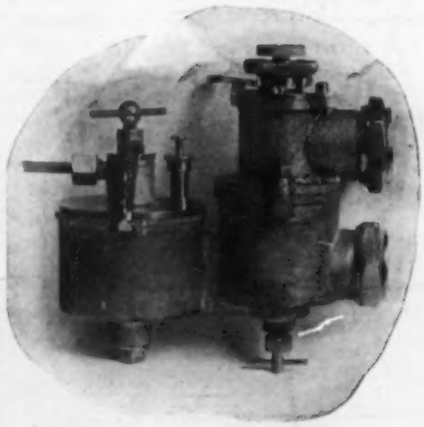
Holley Automatic Carbureter.

The Holley automatic carbureter for 1905, while of the float-feed type, embodies features of especial interest in the working out of the details with a view to securing automatically a correct mixture at all motor speeds. The various parts are clearly shown in the accompanying drawing, and their functions may be readily understood by following the course of the gasoline as it passes through the carbureter.

The gasoline supply pipe is simply slipped into its place, where it fits closely, and is held by a ring packing forced down by a packing nut *A*. The same method of attachment, called a slip-joint, is used for the air inlet and the gas outlet tubes, and is said to give entire satisfaction. The gasoline passes into the float chamber *X*



CARBURETER IN PARTIAL SECTION.



HOLLEY AUTOMATIC CARBURETER.

through the needle valve, passing, on its way, through a strainer of fine wire gauze, A^1. A yoke, the ends of which engage lugs cast on the outside of the body of the float chamber, passes over the little top chamber containing the strainer, and a thumb screw *B* in the yoke holds down the cover *D* of the strainer chamber and at the same time the float chamber cover *Y* of which the strainer chamber is a part. Only the top of the yoke, where the thumb-screw passes through, is shown at *C* in the drawing. By loosening this screw the straining chamber may be removed for cleaning, and at the same time the cork float and the needle valve may be removed for inspection. A sediment and water trap *J* screws into the bottom of the float chamber and carries the lower end of the needle rod. The usual "tickler" *F*, for depressing the float and causing an extra supply of gasoline to flow into the mixing chamber for starting, is placed on the float chamber cover. The float and needle valve operate in the usual manner. By means of the nuts *H H*, the needle valve may be raised or lowered with relation to the float, so as to cut off the flow of gasoline from the supply pipe at the proper level.

On leaving the float chamber the gasoline flows through the passage *K* into the spraying nozzle K^1, which projects upward into the mixing chamber with its tip in the center of a short tube, K^2, of comparatively large diameter. This tube has an external flange *R* which normally rests on an internal flange formed on the wall of the mixing chamber. The internal flange is drilled with a number of holes *S*, which are covered by flange *R* when in its normal position. The tube is open at both ends. At its upper end is a yoke into which is screwed the rod *V*, which passes easily through a hole in the guide *M*. The guide screws into the top of the mixing chamber and is turned by means of a milled head. *N* is a lock-nut with milled edge. The tension of the spring *Q* holding the flange *R* on its seat is adjusted by this threaded member.

The motor when running at a moderate speed, can draw as much air as it requires

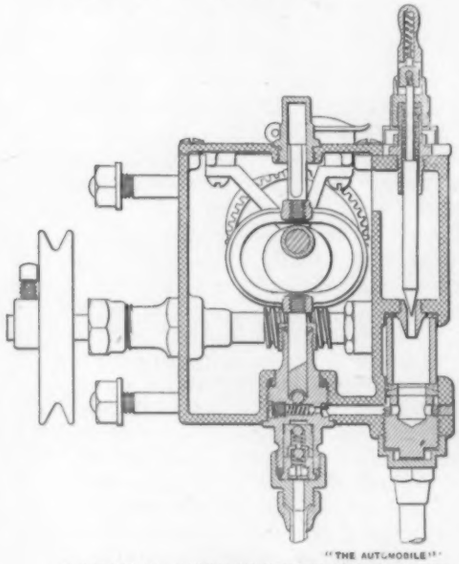
through tube K^2, drawing a proportionate amount of gasoline from the spraying nozzle as the air rushes past. At higher speed, however, the tube will not pass a sufficient volume of air, and the partial vacuum formed in the upper part of the mixing chamber lifts the flange R and allows an additional supply of air to pass through the holes S; the greater the speed of the motor, the higher the lift of the flange and, consequently, the greater the amount of air admitted in the same space of time. The pressure of the spring Q determines at what motor speed the auxiliary ports shall be opened. The spraying nozzle may be cleaned by removing screw W.

This new carbureter is marketed by George M. Holley, of Bradford, Pa.

Lunkenheimer Lubricator.

The mechanical lubricator for automobiles which has recently been offered by the Lunkenheimer Company, Cincinnati, O., possesses the advantages of being positive in action and automatic to the extent that it forces oil to the surfaces to be lubricated only when the engine is running, and ceases when the engine comes to a standstill, so that the operator does not have to remember to turn off his oil when he stops his machine. Any one or all of the feeds may be cut out at will and the rate of feed may be varied to suit the work.

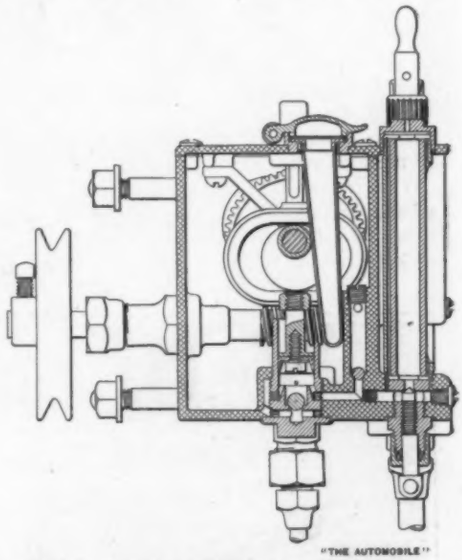
The aluminum body of the lubricator is rectangular in shape and is divided by a partition into two main chambers. The smaller chamber is not in any way connected with the mechanical feed, however, being simply a separate container for the special crank-case oil which is forced to that part of the engine by means of a hand-pump. This chamber occupies one-fourth of the whole length of the lubricator, and is fitted with a gauge glass. The main chamber, which occupies the remainder of the body, contains the cylinder oil and the pumps and pump-actuating mechanism. A steel shaft, on which two hardened steel eccentrics are pinned, runs the entire length of the large chamber and is supported by removable brass bushings at either end, as well as a central bearing. The shaft carries at its center a worm gear meshing with a worm carried on a shaft extending, at right angles to the main shaft, through a stuffing box in the back of the case. The outer end of the worm shaft is fitted with a pulley for round belt or a sprocket for chain drive, and motion is derived from the camshaft of the motor. Reference to the accompanying sectional drawings will make these points clear.



SECTION OF LUNKENHEIMER LUBRICATOR SHOWING SIGHT FEED.

It will be understood that the lubricator case is bolted against the dash with the pulley shaft extending through the dash into the motor space. The worm gear on the main shaft being comparatively large, the shaft is given a slow rotative speed. The cams on the main shaft are located one on each side of the worm gear, and each gives an up and down motion to a brass yoke. A guide extending upward from the top of each yoke works in a brass bushing in the top of the case, while the lower part of each yoke carries three pump plungers—six in all—which work in pump cylinders set in the bottom of the case. The eccentrics are set opposite each other, one set of plungers being up while the other set is down. Five of these pumps are available for lubricating purposes, while the sixth is employed as a feeder for the others, the diameter of its plunger being sufficient to enable it to pump as much oil as all the others at once. This feed-pump takes oil from the main reservoir and discharges it into a smaller auxiliary reservoir, which forms an extension of the main casing. This auxiliary tank extends across the upper half of the front of the case—that is, the side nearest the operator—and is separated from the main tank by a partition which extends only about two-thirds of the way up, leaving an open space at the top over which oil may flow if it reaches a sufficient height in either division. The angle under the auxiliary reservoir on the exterior is occupied by the sight-glasses for the five lubricating pumps. The oil is fed through these glasses from the little reservoir, and the rate of feed through each may be regulated or cut off altogether by means of a valve seating at the mouth of the downward feed and controlled by a handle on the top of the case, directly over the glass.

The operation of the lubricator is as follows: Motion is transmitted from the motor to the short worm shaft and through the worm on the cross shaft and the gear and eccentrics on the main shaft to the pump plungers on the yokes. The large, or feed pump, takes oil from the main reservoir and pumps it into the auxiliary reservoir. From thence the oil descends, at the rate permitted by the set of the controlling valves, to the intake pipes of the lubricating pumps, by which it is forced to the desired portions of the motor. In the end of each feed pipe (that is, where the oil is finally discharged into the motor) a small check valve is placed. This ensures the entire length of the feed pipe between the pump and the discharge being constantly filled with oil, so that whatever quantity of oil is pumped into one end of the pipe is forced out at the other end without the delay consequent upon pumping full a pipe from which all the oil has drained, as it would be if the check valve were absent. The object of the auxiliary reservoir is to enable the oil to be fed through sight-glasses on its way to the pumps, and also to give the operator some leeway by having a little oil still in the auxiliary tank after the main tank is empty. The height of the oil in the main tank may be observed by means of a guage glass set in a recess at the corner of the case. A similar glass at the other end of the case shows the depth of oil in the tank used for crankcase oil.



SECTION OF OILER SHOWING WORM GEAR MECHANISM.

The check-valves throughout this lubricator consist of brass balls of suitable sizes, those closing horizontally or upward being assisted by light springs, while those closing downward are gravity-operated. All the moving parts are immersed in the oil of the main tank, making their lubrication perfect, and the brass bearings for the shafts and the worm on the cross shaft are readily removed and replaced when worn. The five lubricating pumps have solid plungers working through stuffing boxes, while the large feed pump has a piston with a leather packing.

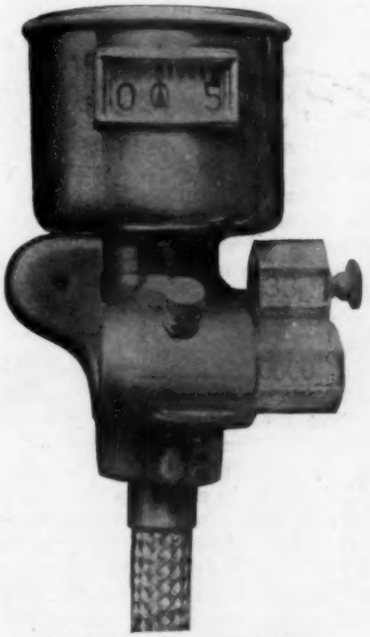
While the lubricator described has five feeds, the Lunkenheimer Company makes this appliance with more or less feeds, according to requirements. The five-feed lubricator is considered an advantageous size, there being a feed for each cylinder of a four-cylinder motor and one for the clutch collar, in addition to the hand pump feed for the crank case.

Magnetic Speed Indicator.

Magnetic forces are utilized for indicating the speed of an automobile in a unique little instrument that is of more than usual interest because of the application of a new principle in speedometers. As the illustrations show, the instrument combines a speedometer and an odometer, the odometer having, in addition to the usual season mileage dial, a separate trip dial. The odometer, which is a Veeder instrument, is removably attached to the side of the shank of the Auto-Meter, which is secured to the dash of the car by means of a hinged plate.

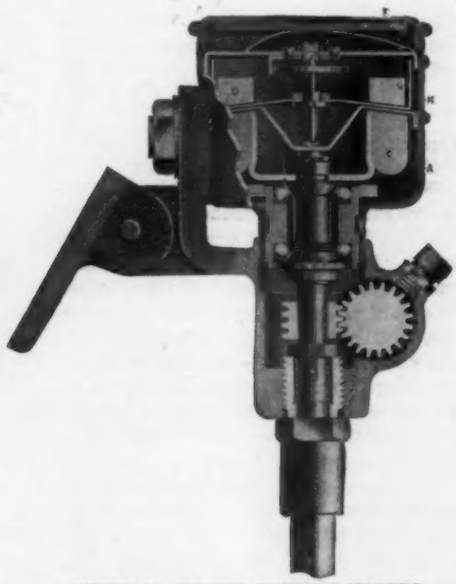
The trip dial, which can be set back instantly to zero without leaving the driver's seat, has been found an especially convenient feature when picking out a new route from road book or route card directions giving the mileage from one turning point to another.

But it is in the speed measuring device that the novelty lies. This depends for its action upon the magnetic "drag" set up between a rotating circular positive magnet and a fixed ring of soft steel. The action will be made clear by reference to the accompanying sectional drawing, in which *A* is the pressed brass shell, having a screw cap *F*. The flexible shaft is mounted in adjustable ball bearings, and has fixed to it beneath the bearing a worm which rotates a spiral gear at the right. A pin set eccentrically in the back of this engages the star wheel of the cyclometer.



WARNER DASH AUTO-METER.

Above the ball bearing the shaft has fixed to it a brass cup carrying the positive ring magnet *C*, which rotates with the shaft. This ring is split at one point to form negative and positive poles. In the upper half of the brass shell is a removable brass cup or circular box *E E*, formed in two parts screwed together, as shown, and resting on an annular shoulder on the inside of the shell. The box *E* is provided with two central jeweled bearings *J J*, supporting a small hardened steel shaft. From the middle of this shaft is suspended an aluminum disc *G*, to the outer periphery of which is attached a paper dial showing, through the glass *K*, figures and lines representing miles per hour. Carried on the same shaft is a hair spring *H*, to counteract the magnetic drag and to return the dial on the aluminum cup back to zero when the magnet *C* is at rest.



VERTICAL SECTION SHOWING MAGNET ARRANGEMENT.

Above the aluminum disc *G* is fixed a ring D of soft steel, which cannot rotate. At *L* is a three-armed spring plate, dished to hold the indicator box *E* tightly in place when cap F is screwed into place.

In operation there is a constant flow of magnetism from the magnet through the brass bottom of *E* and the aluminum disc to the soft steel ring and back to the magnet. When the vehicle moves the magnet is rotated and the magnetic currents set up an induced or accessory action in the aluminum disc known as a magnetic drag, causing the dial to rotate against the action of the hair spring a distance in exact proportion to the speed of the magnet; the dial can therefore be marked by equal divisions from the lowest to the highest reading. Adjusting the magnet closer to the steel ring increases the drag or torque, so that the instrument can be adjusted in the factory for any variations in spring tension or magnetic power before being sealed and placed in the market. Once properly adjusted, there is no necessity for subsequent adjustment or recalibration

WARNER AUTO-METER TAKEN APART TO SHOW CONSTRUCTION.

The magnet is of a form especially adapted to maintain permanency, while the narrow air gap (1-32 of an inch) prevents the instrument from being influenced by outside magnetic forces.

An important feature of the Auto-Meter is the fact that the instrument is not operated by centrifugal force, which increases as the square of the speed, but the dial rotates in the same proportion as the speed increases, so that all divisions are equal. There is no gearing connected to the indicator dial to wear or vary in frictional resistance, and the indicator dial does not tremble and vibrate under the influence of the magnet, but moves steadily as the speed rises or falls, and remains stationary when the speed of the car is constant. The indicator is marked for a range of speed up to sixty miles an hour, but can be made to register up to 100 miles or more if there is occasion for it.

The Auto-Meter, which is manufactured by the Warner Instrument Company, of Beloit, Wis., is made on the identical principle of the Warner Cut-Meter, a hand instrument made for determining at an instant the speed of lathes, milling cutters, planer bed plates and other pieces of machinery, in which field it is used by many of the leading machinery and manufacturing companies of the country.

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ANNOUNCEMENT.

On the day of publication of this issue both the great Madison Square show and the artistic Importers' exhibit in the Herald Square Hall, will be open to the public, and the annual invasion of New York by thousands of persons, in the trade and out, from all parts of the country, will have been begun. We take this occasion, therefore, to extend a cordial invitation to members of the trade and to our subscribers to visit the publication offices of THE AUTOMOBILE, *during their stay in the city. Located in the Flatiron Building, at the junction of Fifth Avenue, Broadway and Twenty-third Street, diagonally opposite the Madison Square Garden, the offices are easily accessible, and a cordial welcome awaits our friends and acquaintances, many of whom we have not had opportunity to meet in person, and with whom we have numerous interests in common. For the convenience of visitors, mail can be addressed in our care, and we shall be happy to afford facilities for correspondence, telephone communication, and furnish any local information that may be of assistance to those from out of town.*

With this assurance of our desire to be helpful to all, and especially to strangers, we are,

Respectfully
THE PUBLISHERS.

✹

Industrial Outlook for 1905. The outlook for the year, as outlined by the leaders in the automobile industry in this issue, is most promising. The general tendency of stability, involving sound business principles and a high standard of production, is the basic note of the entire correspondence. Some letters from persons well qualified to estimate the requirements of the year, advising a conservative output, are withheld by request. No one will question the advisability of restraining the product to its probable requirements, but even if the total capacity of the manufacturers be in excess of the probable demand, any overproduction is most likely to accumulate to those who are latest in entering the lists, and whose reputation is as yet unearned.

The correspondence develops the best remedy of a possible overproduction. When the dealer can be assured that his stock of "Spring Styles" will not go out of fashion, and the consumer convinced that impossible propositions are not to be demonstrated, both manufacturer and dealer can inventory an unsold car with a clear conscience, and the owner of last year's car will not visit the show with so much trepidation.

Much sound advice is also given regarding the use of the public highways by automobilists. Let every driver assume personal responsibility in this matter, with a proper regard for rights of all users of a public property, and legislation will soon become unnecessary and uncalled for.

The expression as a whole, voicing the sentiment of those who have given the subject most careful thought and attention, is conclusive that we are only crossing the threshold to a great and prosperous industry. We may have our fads and our fancies, but these must give place to absolute progress along the lines of commercial utility and economy.

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Artistic Effects at the Importers' Salon. Whatever the merits of the controversy as to the advisability of holding two entirely distinct shows in New York, there can be no disagreement over the fact that the Importers' Salon now open, sets a new standard in America, in the *tout ensemble* of an automobile exhibition. No persons, not even excluding those who have been educated up to the standard of artistic magnificence of the great Paris displays, can visit the exhibition at Herald Square, without feeling that the management has made a serious and successful effort to prepare a picture that will live long in the memory, after the show itself has disappeared in history. Good taste and artistic feeling have created an atmosphere in the Salon that must certainly promote the interests of the exhibitors, and the trade in general.

Among the public, many who have had no previous interest in automobiling, will be induced to visit the show for the artistic enjoyment to be derived from contemplation of the composition. Others, who have more serious intentions in the direction of purchase of cars, will be led to place greater confidence in the artistic ability of the exhibitors. It is true that the prevailing type of car at this show comes under the classification of luxury; yet the lesson is one that can be profitably committed to memory by those having in charge the preparation of shows of domestic cars, which embrace much of a more purely practical and utilitarian character.

In the commercial treatment of art, it is an open secret that a good frame will often sell a poor picture, and so an artistic setting, while adding richness to an expensive car, will certainly produce a subtle impression of quality in the contemplation of an inexpensive one.

The time when mere perfection of mechanical detail in a car was all that was sought, is rapidly passing, now that engineering design and construction is becoming standardized, and the time when the artistic treatment of the vehicle as a whole will be demanded is rapidly coming, if not already here.

The setting of an exhibit is a pretty sure measure of the ability of the exhibitor to recognize that necessity, and of his skill in meeting it. Certainly the Importers have given evidence of possessing that ability in what is comparatively a high degree, and we believe that our readers who have the opportunity, will find a visit to the Herald Square show worth while, even for its educational value in this direction alone.

✹

Importation of Foreign Cars. A wide difference of opinion still prevails, even among experts, on the question of the foreign automobile in the American market; on the one hand, the importers and agents of the foreign car uphold its continued all-around superiority, while on the other some American makers proclaim it a thing of the past in this country. Between the two extremes are varied opinions as to the exact relative merits of American and foreign cars for American use at the present time. At the time when this war of opinions is rife as a result of the great Paris show, and forthcoming exhibitions at home, it is a matter of no small interest to be able to refer to definite official figures.

The statistics of the appraised values of imports of all kinds for the year just ended have been published this week on the authority of the Appraiser of the Port of New York, the net figures showing a decrease in value of over half a million dollars. Among the most important items are the figures relating to automobiles, which may be assumed to cover practically the importation of foreign cars into the United States, the great majority entering by way of New York.

In the year 1903 the number of cars imported was 325, with an appraised value of $1,300,000; while during the year just closed these figures grew to the imposing totals of 602 cars, valued at $2,209,492. This means an increase of 85 per cent. in the number of cars and of 70 per cent. in the value.

In the face of these figures it would be idle to deny the existence of a large and rapidly growing demand for foreign cars during the past year, which suggests the

question of a possible change of conditions during the coming season. The most prominent development of the year is unquestionably the favorable public showing of American cars. The performance of the Pope-Toledo cars in the Vanderbilt cup race, the exhibit of the same cars at Paris, and the recent achievements of the Olds runabout and light touring car in England and on the Continent have given a world-wide publicity to a fact already established at home—that American makers are now producing cars that can stand alone in public competition on certain individual merits. As the result of a general recognition of this fact, there should follow a larger demand for these cars at home and a new demand for them abroad; the latter quite possibly making the turn of the tide of importation.

There are solid grounds for the belief that the American car of the future will be marked by certain points of advantage which will commend it to the world, just as a multitude of older American products have made their way on their merits, and that its manufacture has reached a point where regular and rapid improvement will be the rule. At the same time the demand for automobiles is so great in extent and so varied in its nature that there is no reason to anticipate any immediate and marked decrease in the total value of imports for 1905. That the importation of foreign automobiles eventually will disappear as completely as the importation of bicycles ceased can hardly be doubted, in view of the rapid progress on this side and the heavy duties levied by the Government, but just how such this end will be reached depends on the energy and business judgment of the American makers.

TO APPEAL FROM DECISION.

Special Correspondence.

PHILADELPHIA, Jan. 9.—Dissatisfied with the recent decision of the Superior Court of the State, in the case of Bell vs. Radnor Township, in which Judge Orlady held that where the State and township laws conflict, the latter take precedence, the Automobile Club of Philadelphia, through its attorney, has decided to appeal the case to the Supreme Court. The club believes that if this decision is not reversed, the lives of automobilists throughout the State will be made miserable; each township, borough, town and city having a law peculiar to itself, in many particulars, and in most cases employing superserviceable constables to enforce them.

It is pointed out that the fundamental purpose of the present automobile law, which was enacted two years ago (at no little expense to the local club), was to make uniform laws for the government of motor vehicles, throughout the State, and that at one fell stroke Judge Orlady has nullified the most important provision.

Attorney Ballard will file his appeal during the week, and it is expected a decision will be handed down at the March term.

Gasoline motors are quite extensively used in Egypt to pump water for irrigation purposes.

HIGHWAY COMMISSION WOULD RAISE SPEED.

In Annual Reports Asks Right to Change Regulations of Massachusetts Towns to Suit Needs—Would Also Require Non-Residents Only to Carry Bay State Tags.

Special Correspondence.

BOSTON, Jan. 9.—Much that is of importance to the automobilists of Massachusetts, is contained in the annual report recently made to the Governor and legislature, by the Massachusetts Highway Commission, which has charge of the administration of the automobile law. One of the most important recommendations is that the commission be given the right to establish special rates of speed on roads where conditions appear to warrant faster driving than that permitted by the general statute, or where an unusually slow rate seems to be the only safe one. It asks also that its regulations be made to supersede those made by individual cities and towns. Regarding this, the report says:

"The treatment of this matter by the different municipalities has a wide range. Some of the towns accept the speed limits of the act; others fix their own limit of speed. Some of these last-named towns specify four or six miles an hour, as the maximum speed. Most of the towns make no apparent effort to enforce the speed law, while others are quite active in this direction. Many of the towns that attempt to enforce the speed law, do the work spasmodically during five days of the week, paying no special attention to it, but insisting upon a close adherence to the law on Saturdays and Sundays. The inequality of the local speed laws, and the still greater inequality in enforcing the law, tend to bring the whole law into contempt.

"From many conferences with automobilists, with those who drive horses, and by personal observation, the commission believes that there are many places and times when the speed, as at present fixed, is either too great or too small. There are certain narrow streets within fire districts, also certain crooked, outlying roads, where ten miles an hour is a dangerous rate of speed. There are other roads, straight and clear of obstruction, where the speed may safely be in excess of fifteen miles an hour; no general law can cover these cases; each case should be carefully considered by itself. There are some absurdities resulting from local regulation which seem to bring discredit upon this method. Four miles an hour over a state road where there are few houses and no crossroads, is neither necessary nor reasonable; the order is not enforced by the town officers and its existence is harmful. The commission believes that the power to vary the speeds from what they are in the present act, should be given to some central authority, no change to be made except after a hearing. The rates of speed, when different from those indicated in the act, should be plainly displayed on sign-boards at each end of the road affected, and at such other points as may be needed. These sign-boards should be placed by the persons or person charged with fixing the speed; the cost to the state will be repaid out of the automobile license receipts. With the law amended in the manner suggested, the commission believes that it can be executed in a proper manner. If the commission is to continue to sit as a court, with power to suspend or revoke certificates of registration and licenses to operate, it recommends that it be given power to summon witnesses and administer oaths."

Another important recommendation made in the report is that the commission be given power to compel owners and drivers of machines from other states, to strip off all but their Massachusetts registration tax when passing through this Commonwealth. Regarding this, the reports says:

"Foreign machines are in many instances driven over Massachusetts roads with four or more number plates besides the number plate furnished by the commission. It is practically impossible to identify the machine under these conditions. If a foreign machine is persistently made to break the speed law, there is no way of punishing other than by fining the operator. The operator, not being required to take out a license, or the owner a certificate of registration, no complaint made to the commission, can be effectively acted upon. The commission believes that the only effective way to treat foreign machines, is to require them to carry only Massachusetts numbers, and to remove all other number plates. In other words, they should be treated exactly as other machines are treated."

Up to January 1 of the present year, the Highway Commission has registered 3,772 automobiles and 489 motorcycles, and has issued certificates of registration to eighty manufacturers. Licenses for ordinary operators number 3,585, and for professionals, 1,335. There has been turned into the treasury of the Commonwealth, from automobile receipts, $19,166.

UNIVERSAL LIGHTS BILL.

Text of Act to Be Introduced in the Massachusetts Legislature.

Special Correspondence.

BOSTON, Jan. 9.—The Legislature for 1905 opened last week and one of the first bits of automobile legislation that will be brought to its attention, is the lighting bill drafted by Richard P. Elliott, of Boston. The text of this measure is as follows:

Sec. 1. Every person using or running a bicycle, carriage or vehicle propelled by muscular power, other than vehicles used for the transportation of merchandise and farm produce, upon any public street, highway or private way laid out under authority of statute, in this Commonwealth, shall, during the period from one hour after sunset to one hour before sunrise, display a light or lights, so attached to such bicycle, carriage or vehicle, that the light therefrom may be plainly visible for a distance of at least three hundred feet from the front and rear of such bicycle, carriage or vehicle.

Sec. 2. Any person convicted of violating the provision of Sec. 1 of this act, shall be punished by a fine not exceeding ten dollars for the first offence, and by a fine not exceeding twenty dollars for each subsequent offense.

Sec. 3. All fines imposed under Sec. 2 of this act shall be paid to the respective cities or towns where the offences were committed, and shall be expended by them for the building or maintenance of their highways.

Sec. 4. This act shall take effect upon the first day of May, 1905.

One of the strongest arguments in favor of the commercial automobile is the ease with which it does its work on icy roads, while horses not only sprawl helplessly, but frequently injure themselves seriously by falling. Loss of time is bad enough, but the loss of the horse makes the matter infinitely worse.

THREE WEEKS' SPORT IN THE SUNNY SOUTH.

Brilliant Outlook for Automobile and Auto Boat Racing at Ormond Beach, Lake Worth and Havana from January 23 to February 12 — Features of the Courses.

The entry list for the third annual automobile race meet on the famous Ormond-Daytona beach, in Florida, is filling with such rapidity that it is believed the tournament will be far ahead of past meets on the Beach, in every way. One of the features will be the large number of 90-horsepower cars that will compete. Just how many there will be, cannot be known until January 13, when the entry list closes; but there will be enough of these powerful machines to furnish magnificent racing among themselves. Everyone is looking forward to the reduction of world's records, especially for the mile. The beach is peculiarly suited to long-distance work, however, because of its smoothness and also because the cool, damp sand prevents excessive tire heating; so that exceedingly good time should be made in the distance races, from 100 miles downward.

"The beach is almost level—that is, there is but little slope toward the sea. Two feet nine inches is the average rise and fall of the tide, and there is an available width of beach of from 300 to 500 feet that can be used from two hours after to two hours before high tide, giving seven or eight hours daily for automobiling. So hard and firm is the sand that the tire tracks of an automobile are hardly visible, and the resistance offered to the progress of the car by the sand is practically nothing.

Accommodations at Daytona.

During the past summer the Florida East Coast Automobile Association has erected a comfortable and commodious clubhouse, on the beach, just opposite the 10-mile mark of the 20-mile course. There are now about 200 members of the association, including some of the most prominent automobilists in the United States.

Two new hotels have been built in Daytona, and, in addition, the twenty hotels already in existence have made improvements, some of considerable magnitude. Nevertheless, it is expected that the capacity of all will be taxed during the meet. A new railroad bridge has been built across the Halifax River, so that trains can be run almost to the doors of the hotels. There is also a new garage, a chauffeurs' clubhouse, and numerous other improvements have been made, largely as a result of the automobile invasion of Florida.

TYPICAL NATIVE HOUSES ALONG HAVANA-SAN CRISTOBAL ROAD, CUBA, WHERE 100-MILE RACE WILL BE HELD FEBRUARY 11.

Perfection of Florida Beach.

J. F. Hathaway, of Daytona, Fla., who was the first to call attention to the possibilities of the beach as a speedway, and has always been closely identified with the races held there, states that the sand is not what is usually called "sharp" but is composed of rounded grains, consisting largely of particles of the shells of a species of clam. The sand has the peculiarity of settling down into a hard, compact mass as soon as it is left by the water. "Surely," says Mr. Hathaway, "it must have been made for automobile racing, for, regardless of weather conditions, there is no dust and no mud; tires are never heated, owing to the moisture; and road repairs are unnecessary, for twice in the twenty-four hours the track is entirely rebuilt by the tides."

Contest for Dewar Trophy.

One of the most interesting competitions on the list is the one-mile event for the trophy offered by Sir Thomas R. Dewar, which will be run in heats of four cars each and a final. It will be an international affair, and the wide, straight, smooth sand will give the drivers every possible opportunity to get the last pound of power out of their motors. Sir Thomas has expressed the desire that his cup be made a perpetual challenge trophy. It is being manufactured in this country, and will cost $1,000. Sir Thomas has been appointed an associate referee for the automobile and auto boat races, and has expressed his pleasure at the honor. He will go to Florida for the races after a trip to Canada, but will be in New York during the Madison Square Garden automobile show, having arrived January 5, on the *Graf Waldersee*. A reception will be tendered him by the New York Motor Club, Sunday evening, January 15, at the Hotel Astor.

By Auto Boat to Havana.

The program of races to take place at Lake Worth, Palm Beach, on February 1, 2 and 3, includes a number of rowing and sailing races in addition to the power boat events. The final event of the series is planned to start on February 4, and takes the form of an endurance run for auto boats, to Miami, Key West and Havana, with short races at each of these places.

The automobile and auto boat race meet to be held at Havana, Cuba, February 9 to 12, will, it is hoped by the promoters, be repeated annually, and the cordial manner in which the government officials received the request for permission to use the highways for racing purposes, is a guarantee of moral support, at least, from that direction. The conditions for road racing seem to be unusually favorable. Long stretches of smooth, level highway, passing through a rather thinly settled country, offer every opportunity for high speed, and the turns, for the most part, are easy. There is said to be but one really awkward turn in the entire course selected for the 100-mile race, that being at a small town called Guanajay. Close attention is paid to the condition of the road surface, and repairers are constantly at work, defects being attended to without delay, so that a badly damaged spot in the main road is almost unknown.

The International Automobile Racing Association of Cuba, organized about a year ago, will formulate the rules governing the races, and will do everything in its power to make the visiting automobilists comfortable.

The Program in Cuba.

On February 9, the first day of the meet, there will be the following road races:

LINE-UP OF RESIDENT AND VISITING MOTORISTS ON ORMOND-DAYTONA BEACH, WHERE FLORIDA TOURNAMENT WILL BE HELD JANUARY 23 TO 28.

Quarter-mile dash, best 2 in 3 heats; half-mile dash, best 2 in 3 heats; 1-mile race, best 2 in 3 heats; 5 kilometer (3.1 miles) handicap; 10 kilometer (6.2 miles) handicap; 15 kilometer (9.3 miles) handicap; 20 kilometer (12.4 miles) handicap.

Auto boat races at 1, 2, 10 and 20 miles are scheduled to take place in Havana harbor on February 10, to be followed, in the evening, by an illuminated floral parade of automobiles, and a "Battle of Flowers" on the Prado in the city.

The chief event of the meet will undoubtedly be the 100-mile road race, which takes place on February 11, over the Havana-San Cristobal road, the prize for which will be a cup, valued at $1,000, called the Havana Municipal Cup. A gold souvenir medal will be given to every competitor in this event who finishes within two hours racing time.

February 12, the last day, will be a time of relaxation, the idea being to devote it to sightseeing runs in and about the Cuban capitol, the Cuban automobilists entertaining the visitors.

PREPARATIONS AT ORMOND.

Elaborate Arrangements of Florida Association to Make Races a Success.

Special Correspondence.

DAYTONA, Fla., Jan. 7.—There is a great deal of activity, even at this early date, at the scene of the Ormond-Daytona beach contests for 1905. While heretofore the Florida East Coast Automobile Association has left the details of the tournament to be settled at New York, or has decided the knotty points on the spur of the moment, or on the first day of the racing, this year under the management of the newly elected president, Edward M. Steck, a thorough system of organization has been effected, and, from observations made here at Daytona, seems to be working out well. The plan of action includes a committee at New York and a working force at Daytona. The wires are kept hot and the mails are used generously and so as close a touch is kept between the two places as time and distance will allow. The result is that thre is little prospect that anything will be left undone which can be done to make the coming races a success.

The campaign of the Florida organization is being founded on very broad principles. It includes the improvement of the roads in the neighborhood of Ormond and Daytona, as well as the arrangement of details of the races themselves. The organization is acting also as an information bureau, and there is no need for any one starting for the southern beach without full knowledge as to conditions here, if he will take the trouble to write the association. The headquarters for the races have been shifted from the Hotel Ormond to the town of Daytona. Ormond will still be the social end of the course, and many of the contestants and visitors will stop there, not only because of the excellent hotel facilities, but because of enlarged garage accommodations and conveniences; but the executive management of the meeting will be from what is known as "The Clubhouse on the Beach."

As arranged for the races, the clubhouse will contain a room for the deliberation of the officials, a room for correspondence, a telegraph office with two operators, a large grill room and a café, besides ladies' rooms and conveniences for the entertainment of the many visitors who are expected. A garage for a few cars has been built at the rear of the clubhouse and the association is now erecting an addition to the large veranda, which will extend out as a sort

SIR THOMAS DEWAR LANDING IN NEW YORK.—W. J. MORGAN IN MIDDLE OF GANGWAY.

of pier to the edge of the beach itself just in front of the ten-mile post, which is the most important milepost of this year's races.

The F. E. C. A. A. has purchased a platform scales for weighing in the racers. There will be a larger police force on the beach during the tournament, and a more distinctive method of identifying officials will be adopted. There will be official cars for the referee, clerk, judges and timers. The course has been resurveyed and marked with new mileposts along the entire reach. The telephone wires on the beach have been extended until they reach in an unbroken line for sixteen miles. There is a "tap" for movable telephones at each milepost and next week, when the kilometers are measured off, there will be "taps" at these points also, preparing the way for the intsallation of the McMurtry timing devices with a completeness never before possible.

So far only one racer—the Christie front-drive machine—has appeared on the beach, but a telegraph to-day conveys the information that Oldfield will be on the ground Monday. Wednesday the stock Darracq will be at Daytona. It is also understood that Webb's six-cylinder Pope-Toledo and S. B. Stevens' Mercedes cars will arrive within two or three days. There are at present more than 100 touring cars running about the streets of Daytona, with its population of 5,000, so that there is a car for every fifty of the inhabitants.

DE CATERS CUP.

Baron Offers One Similar to Glidden and English Club Trophies.

Special Correspondence.

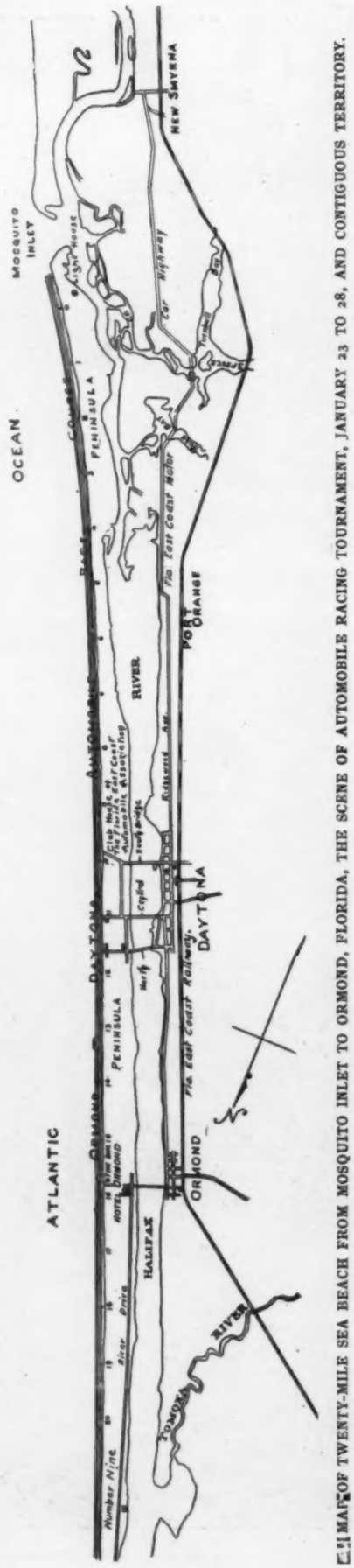
PARIS, Dec. 29.—Baron Pierre de Caters has added another to the now somewhat numerous automobile cups. The new challenge is a speed test for touring cars, and will be run by teams representing different countries. The general regulations will be similar to those existing for the Gordon Bennett Cup, with the exception that the race will be run by teams in proportion to the productive power of the country they represent, and being not less than three, nor more than seven for each team.

The cylinder capacity of the cars taking part, must be from 1,500 to 2,000 centimeters cube per cylinder; thus, for four cylinders it would be 6 to 8 decimeters cube, giving about 40 horsepower. The maximum weight of the chassis must be 1,100 kilos (2,420 pounds), and the minimum weight of the body 200 kilos (440 pounds). The cars must be entirely finished, and in condition for delivery to customers.

Four persons, each weighing not less than 70 kilos, must be carried in each car during the race; the distance of which will be several hundred kilometers. The cup will be awarded to the nation having the lowest number of points in the contest, one point being given to the first, two to the second and three to the third, and so on.

The object of Baron de Caters in founding this cup is to encourage the construction of automobiles possessing all the qualities necessary for extensive touring. The regulations of this new contest are now under discussion, and will doubtless be modified in many respects before being definitely adopted.

The Prince of Wales has accorded his patronage to the Motor Exhibition, to be held February 10 next, at Olympia, London, under the auspices of the Society of Motor Manufacturers and Traders.



MAP OF TWENTY-MILE SEA BEACH FROM MOSQUITO INLET TO ORMOND, FLORIDA, THE SCENE OF AUTOMOBILE RACING TOURNAMENT, JANUARY 23 TO 28, AND CONTIGUOUS TERRITORY.

CHICAGO-MILWAUKEE RACE.

Speed Contest Over Sheridan Road Projected by Chicago Club.

Special Correspondence.

CHICAGO, Jan. 9.—A road race from Chicago to Milwaukee, patterned after the Gordon Bennett cup contests, is one of the projects that are interesting the members of the Chicago Automobile Club. The race is one of the probabilities of the year. The route is being canvassed by members of the organization, and a report will soon be made to the directors of the club for their approval.

The Fort Sheridan road is one of the best drives out of Chicago. It is a continuation of the Lake Shore drive, and finds its beginning at the north entrance of Lincoln Park. Years ago the driveway connected Fort Sheridan, thirty miles north, with Chicago. Then it was continued farther north and now between Milwaukee and Chicago, with the exception of a few miles, there is a well paved, broad roadway along the shore of the lake which the automobilists have enjoyed.

The proposed contest will hinge upon the completion of these unfinished miles of roadway. During the lifetime of Volney W. Foster the supporters of a completed road had a valiant fighter. It was one of his hopes that the Sheridan road might be built and graded in conformity with the rest of the road. The present impetus which has come through the automobilists—the advance agents of the good roads movement all through the West—will undoubtedly carry the project to completion. Among the men who are working towards this end are Jerome A. Ellis, A. G. Schmidt, Donald A. Sage, John E. Fry, N. H. Van Sicklen, E. R. Estep, C. A. Coey and G. A. Crane.

CLUBHOUSE PLAN RATIFIED.

A. C. A. Governors Authorize Purchase of Site and Erection of Building.

A report regarding the proposed new clubhouse and garage of the Automobile Club of America was made at a special meeting held at the clubrooms on Fifth avenue, New York, on Tuesday evening, January 10, with President Morris in the chair. After officially deciding that a clubhouse and garage should be erected, resolutions were passed, ratifying the action already taken and providing for the immediate carrying out of the plans.

The governors were authorized and directed to purchase a site in the Borough of Manhattan and to erect upon it a suitable clubhouse and garage official ratification was given to the building committee appointed by the governors, consisting of Albert R. Shattuck, chairman; Colgate A. Hoyt, and Dr. S. S. Wheeler, and authority was given to the president and treasurer of the club to transact all business in connection with the financing of the plan.

A further resolution was passed conferring upon the board of governors power to organize, if deemed necessary, a building company to carry on the building operations in its own name; a contract being entered into, however, to sell the clubhouse and garage to the club when completed.

The starting of a gasoline motor in cold weather can sometimes be facilitated by partially obstructing the air inlet, as by having someone place a hand over it.

A British Thermal Unit, usually abbreviated "B. T. U.," is the quantity of heat necessary to raise one pound of water through one degree Fahrenheit.

ANNUAL BANQUET OF SYRACUSE CLUB.

Many Distinguished Guests Grace the Most Successful Affair Ever Held by Salt City Organization — Mayor Tobes, Congressman Driscoll and Others Speak.

Special Correspondence.

SYRACUSE, Jan. 7.—The third annual banquet of the Automobile Club of Syracuse, which was held Tuesday night at the Yates hotel, was one of the best arranged and most enjoyable affairs ever held in the big dining-room of the spacious hostelry. Members of the club and their guests to the number of seventy-five spent four hours in solid, wholesome enjoyment. Just one hour was devoted to the excellent menu prepared for the occasion, and the other three to listening to the speakers.

While most of the remarks were in lighter vein, some of the speakers touched upon the broad field which lies before automobilists as a class, of the time when the motor car will become the active rival of the railroad and when the people will fully realize and hail the motorist in his rôle of public benefactor.

It was shortly before 9 o'clock that the banqueters filed into the big hall and seated themselves at tables splendidly adorned. In the center of the head table a huge automobile, constructed entirely of roses and carnations, formed the main feature of the floral decoration. At this table sat the officers of the club, President Willet L. Brown, Vice-presidents Hurlbut W. Smith and George S. Larrabee, Secretary-Treasurer Frederick H. Elliott and C. Arthur Benjamin, member of the Committee of Arrangements. Among the guests were Mayor Alan C. Fobes, Ralph S. Bowen, Commissioner of Public Safety; Walter W. Magee, Corporation Counsel; M. E. Driscoll, Representative in Congress; Harlan W. Whipple, president American Automobile Association; Prof. W. K. Wickes, principal Syracuse High School; Justice Frederick W. Thomson, Robert E. Gilman, Willis C. Newell, Charles Livingston, Martin Maxwell, James Gere, Good Roads Committee, Board of Supervisors; William Rubin, Assistant Corporation Counsel.

Among the others who attended were the following: A. R. Bangs, Boston, Mass.; E. H. Towle, Waterbury, Conn.; Alfred Clark, Paris, France; I. R. Gardinier, Utica; R. M. Owen, New York; S. H. Boren, Dallas, Tex.; C. S. Mott, Utica; H. W. Doherty, Boston, Mass.; John Maxwell, Oneida; S. C. Tallman, Auburn, and the following of this city: E. H. Dann, Giles H. Stilwell, John Wilkinson, W. Y. Sindsley, O. N. Hine, Theodore A. Young, J. A. Seitz, W. C. Newell, Ames Howlett, W. S. Dunning, C. C. Bradley, Jr., Forman Wilkinson, Harry C. Pierce, S. C. Crane, S. G. Chapman, Frank Z. Wilcox, M. A. Maxwell, W. C. Blanding, D. B. Lee, H. B. Crouse, H. H. Franklin, H. S. Holden, William H. Bex, John W. Cronin, Hubert Dalton, E. H. Hungerford, H. W. Chapin, W. C. Lipe, A. T. Brown, T. A. Garrett, Sigmond Krause, F. R. Bump, F. M. Kimmey, J. L. Kimmey, J. N. Willip, W. O. Rutherford, A. G. Bolster, A. O. Greene, W. A. Fancher, A. B. Levi and S. H. Cook.

With the coffee and cigars, President Brown addressed the gathering briefly, saying that the past year had been one of pleasure and profit to the club and that the prospects for 1905 were extremely bright. He hoped, he said, that the club members would not rest until every automobile owner in Syracuse had been enrolled among them, that every effort be made in assistance of Assemblyman M. E. Cadin to get the toll roads of Onondaga County abolished by law. He thought that a club run should be held at least monthly during the coming summer, and that if practicable a clubhouse somewhere outside the city limits should be secured where the members might drive for enjoyment. He concluded by introducing the toastmaster, Attorney Henry Walters, who, after a few remarks, introduced Mayor Fobes.

The chief executive thanked the club for its assistance with cars and drivers when he had entertained the city officials with a ride to South Bay, and again when the mayors of various cities of the state were his guests during the last State Fair. He referred to the growth of the Franklin Company, which, after May 1, will employ 1,000 men and become the largest single industry within the city limits. He told of his trip to Atlantic City with Commissioner of Public Safety Bowen in the interests of an automobile police patrol which, he said, Syracuse would own before many weeks have passed.

Principal W. K. Wickes, of the Syracuse High School, and Harlan W. Whipple, president of the A. A. A., followed the mayor, and then Supervisor Robert E. Gilman spoke exclusively on the subject of good roads.

Congressman M. E. Driscoll observed that when the aid of the government had been sought in the matter of good roads, the men at the head of the movement had not gone about it in the right way. He suggested that sooner or later the mail carriers on the rural free delivery routes of the country may be supplied with automobiles, and when that time comes, he said, the government will be forced to take up the good roads question in earnest.

In a ringing address, Giles H. Stilwell said that the day would come when the automobile would become the rival of the railroad. The government, he said, had expended $66,000,000 for railroads across the continent, why not a similar amount for a good continental highway?

Other speakers were William Rubin and Judge Thomson, whose humorous observations kept the hearers in continuous applause.

NEW DETROIT CLUB.

Trade Organization Starts with Thirty-Five Charter Members—Broad Objects.

Special Correspondence.

DETROIT, Jan. 9.—The Detroit Automobile Club, the new organization for the furtherance of trade interests, not only in this city but elsewhere, was formed Saturday at a meeting held at the Russell House. The charter membership is but thirty-five, but these represent only the prime movers in the organization, and it is expected that the number will be increased soon to 100.

By the time the Automobile show comes to the Light Guard Armory, five weeks hence, it is expected that club rooms will be fitted up in the basement of the Russell House and the organization will be a big feature in entertaining the visiting automobile men. Not only is the object of the club to further trade interests, but the club also hopes to prove a big influence in popularizing motoring in Michigan.

The following officers were elected: President, William E. Metzger; vice-president, S. D. Waldon; secretary, E. H. Broadwell; treasurer, Roy D. Chapin; board of directors, James Couzens, Roger J. Sullivan, W. G. Morley, C. J. Moore and William C. Rands.

NEW CLUB IN BOSTON.

Bay State Automobile Association to Work for Interests of Sport and Trade.

Special Correspondence.

BOSTON, Jan. 9.—Boston automobilists have followed the example set in New York, of forming a popular automobile organization, which is intended to have a large membership, and to include owners of machines and persons connected with the sport and the trade throughout New England. The need of such an organization in this vicinity has long been felt, and for some time leading automobilists have been considering the feasibility of launching such a project. Recently the matter has taken a more definite form, and a few days ago a meeting was held at which was organized the Bay State Automobile Association. The president is Lewis R. Speare, of Newton, a well-known tourist and owner of several cars. Frederick Tudor, of Brookline, secretary of the Massachusetts Automobile Club, and a hard worker in that organization, is vice-president, and Herbert L. Bowden, the well-known owner of racing machines, is treasurer. John C. Kerrison, of the Chronograph Club, is secretary. Harry Fosdick, New England agent for the Winton; George R. Alley, W. W. Burk, New England agents of the Electric Vehicle Company, and E. A. Gilmore, agent for the Rambler, are the directors.

The organization of the board of officers demonstrates that the Bay State Automobile Association is not designed to run counter in any way to the work being carried on by the Massachusetts Automobile Club, or any of the other clubs in New England, and that it will work in harmony with the Boston Automobile Dealers' Association. It is planned to have the association conducted along the lines of those in Buffalo, Cleveland and Providence. A committee of which, W. J. Foss, agent for the Pope cars, is chairman, has been appointed to secure rooms in some hotel adjacent to the automobile center of Boston, and these rooms will be the rallying place of the organization. The initiation fee has been set at a low figure, and the dues have also been made nominal, so that the membership will be large. A charter has been secured under the Massachusetts laws, and there is a charter membership of fifty. It is expected to increase the membership to 1,000 within a year.

The general object of the Bay State Automobile Association is the advancement of the interests of automobiling, in all directions. A large membership, as proposed, will bring together the motorists socially and will also have an important influence in advancing the interests of the sport and the trade, before the Legislature. It is not intended to rush to the State House with a proposed new set of automobile laws, but it is intended to keep a close watch upon legislation, and to work for favorable measures, and combat hostile legislation. Hostility in towns and cities will also be attended to by the association. Advancement of the cause of good roads will also be a feature of the work of the association.

Deposits of lime left by the water in the cooling system may be dissolved by using a strong solution of caustic potash. After using this the system must be very carefully washed out.

The King of England has gained great popularity among automobilists by opening Windsor Great Park to them, under certain restrictions.

Trade Outlook for the Coming Year.

(*Continued from page 46.*)

tomobiles weighing anywhere from 500 to 25,000 pounds, and, best of all, considering future prospects, those that purchased first have not stopped buying. It is the "repeaters," you know, that tell you "which way the wind blows" in the market, and cause you to be pessimistic or optimistic as to where you are going to land with your product. We can earnestly say that the future "certainly looks good to us." And why not? What industry has ever grown as rapidly as the automobile business, both in the pleasure and commercial product; each factor successful in its construction; and with its vast consort of accessory manufacturers to assist in its growth, why should it not, when you look over the field and carefully make note of the gentlemen concerned in its success.

FIRESTONE TIRE & RUBBER CO.
Joe M. Gilbert,
Manager of sales.

Akron, Ohio.

A Tip-Top Outlook.

Editor THE AUTOMOBILE:—

In regard to the prospects of our business for the coming year, we know from our large orders for Cape tops and other goods that we manufacture that business will be very large this season. The general business of the country is on a sound financial basis; there is plenty of money for large enterprises, and a general feeling of confidence inspired by the high standing of our government among the nations of the world; the experimental stage of automobiles has passed to the manufacturing stage, manufacturers now know that the people want and can make cars that will go under all reasonable circumstances, all the large companies are pushing their trade into all parts of the earth.

We predict that more and better cars will be made during the coming year than ever before, and that the improved adjustable Cape top with glass front will be the rage, on account of being so light and convenient, and also the extension top with glass front will be in vogue.

SPRAGUE UMBRELLA CO.
Jas. H. Sprague, President.

Norwalk, Ohio.

Lamps Trimmed and Burning.

Editor THE AUTOMOBILE:—

It may be interesting to your readers to know that the Scoville & Peck Co., operating under the management of Mr. Peck for the past eleven years, devoted its entire attention to the production of the highest grade of carriage lamps, and when the automobile, about four years ago, began to affect the sales of high-class pleasure carriages, this company determined to enter the automobile field with a grade of work which should be on a line with the quality of its carriage lamp production.

At the start we found it uphill work, as the buying public had not learned to discriminate. To-day we find the situation greatly improved, and to such an extent that the volume of our automobile business is equal to two-thirds of our entire production, and the output of our factory since the year 1900 has increased fully one hundred per cent. There is a reason for this, which we believe is as follows: Manufacturers have equipped their cars with what they firmly believed to be the best, and the owners and users have accepted the same in good faith; but with the persistency which marks the inventive genius of our American mechanics, the results obtained to-day, in both gas and oil lamp equipments, are so far in advance of the earlier productions, that the user of the car now demands results that eliminate almost completely the troubles that he has experienced in the past. These demands have had a far-reaching effect, and to such an extent that, in the line of headlights in particular, every manufacturer of lamps offers as a leader for 1905 a type of lamp that will project light and is most effective under all conditions, has the greatest strength in construction and fewest number of parts liable to get out of order.

In the matter of results, it is without question that American manufacturers lead over all foreign competitors. The season of 1905 will also mark a wonderful improvement in the generators which supply these lamps. Larger capacity will be shown in the product of all leading manufacturers.

In oil side and tail lamps, perfect burning under all conditions is the first consideration, and this point has been reached, without doubt, by all the leading makers. Beauty of design and finish, together with simple and effective methods of removing the oil pot and burner, are further points which show the inventive genius of our American manufacturers. A good tail lamp is undoubtedly many times of greater importance than the two oil lamps in front, when the car is equipped with headlights also, and a word of caution, which may prevent disaster, is, be sure your rear light is so constructed that you can depend upon it staying lighted under all conditions.

Regarding the whole lamp situation, we would say that a good equipment can be obtained at a moderate price to-day, and this is made possible by American methods of manufacture and improved machinery.

THE SCOVILLE & PECK CO.,
E. E. Peck, Mgr.

New Haven.

The Evolution of Transportation.

Editor THE AUTOMOBILE:—

We implicitly believe in the future of the automobile industry; it is our firm conviction up to the present moment that we have just begun to feel on the outside of it. The real business and its real future lies before us; its field is unlimited, and we are as sure that the automobile industry is developing a great and new evolution of transportation as we are that the the sun shines above us.

The commercial end of the business so far remains comparatively untouched, and the unbounded opportunities offered by it have as yet remained unexplored. The hardest part of the work is over, that of introducing and beginning the education of the public to receive this mode of transportation favorably. Our efforts must now be to increase its efficiency and to develop confidence; to this end every legitimate manufacturer should strain every nerve. For the coming year, it appears that every legitimate manfacturer will be able to easily market every car he can build.

ACME MOTOR CAR CO.

Reading, Pa.

More Light.

Editor THE AUTOMOBILE:—

Regarding our experience for this season in the lamp business, we find that all the contracts we have taken have so far called for separate generator lamps, and we know of no concern this year which will put self-contained gas lamps on their cars. We think this a very wise move, as the self-contained lamps are so heavy that the American roads soon make them rattle, which is very annoying with the quiet running cars of to-day.

We also observe that all the manufacturers are putting on two gas lamps, or recommending two, as they give more light, and two lamps seem to conform to the style and looks of the car better than one single headlight.

There is a tendency this year for the manufacturers in their equipment not to include gas lamps. We think this a good idea, as, on account of the low price of most of the new four-cylinder cars, there is not much left for gas lamps in the equipment, and the manufacturer would be tempted to put on cheap lamps.

We find that the public are paying a great deal of attention to lamps this season, more than ever before, and they are willing to pay more instead of less for lamps. The demand is for a better grade.

GRAY & DAVIS.

Amesbury, Mass.

To Lessen Tire Troubles.

Editor THE AUTOMOBILE:—

It is gratifying to note that the leading manufacturers of automobiles have, so American-like, quickly responded to the loud cry for more substantial machines, and have securely riveted parts that were formerly bolted or screwed together. They have also adopted springs that worry their competition and cause them to look about for a more practical spring, and they have strengthened parts that were constantly making trouble; so that to-day all progressive manufacturers can declare their machines adapted to any class of road work, on either pneumatic or solid tires.

Our business brings us in contact with many thousands who extremely enjoy automobiling so long as they have no tire trouble. We know of many, we are sorry to say, who do not use their machines on account of this latter expense. We are in hopes that we may be able to do something to improve this condition, which seems to be the only weak part of the automobile. If, by the jury of users of automobiles, the verdict is given that we have done something towards perfecting or completing the automobile, we shall certainly appreciate it; and we positively know that many thousands of users will do so, and that the increased demand for machines will be astonishing from this time on.

J. A. SWINEHART.

Akron, Orio.

Approaching Permanent Standards.

Editor THE AUTOMOBILE:—

To us the automobile industry seems to be assuming greater stability, year by year. There seems to be a comparative uniformity in design of the various types of machines, allowing, at the same time, considerable latitude for the expression of individual ideas.

Leaving out the light runabouts, it seems that for motive power in the gasoline type of cars, the two-cylinder opposed and the four-cylinder upright will become the permanent forms of motor construction. For light cars, the single-cylinder motor will undoubtedly remain, but for the light touring car the two-cylinder opposed motor will undoubtedly become the permanent form of construction, as the four-cylinder motor will be in cars of twenty-four horsepower and upwards.

The details of transmissions, drive, steering mechanism, springs, differentials, etc., seem to have been pretty effectually wrought out into permanent forms. The wire wheel has passed for good, but the tire

question still appears to be a comparatively hard one. There are plenty of objections to the pneumatic tire, but we believe that is the best thing to use to-day with our present knowledge. The hard and semi-hard tires have their adherents, and, with certain types of motor cars and on smooth pavements, they may be used quite satisfactorily, but we believe for miscellaneous road work that they are not suitable.

While many other points might be touched upon, it seems evident that the industry on the whole is in a healthy condition, and that the demand for the best class of cars for next year will be large. We believe that one of the healthiest signs of the business is that the public are demanding better machines, and are willing to pay a fair price for them. They are learning that a cheaply made car is not the most economical to buy, in the long run.

MICHIGAN AUTOMOBILE CO., LTD.
F. D. Fuller, Sec. and Gen. Man.
Kalamazoo, Mich.

Sound Business Methods Required.

Editor THE AUTOMOBILE:—

Speaking in a general manner of the outlook of the automobile industry for 1905, it is certainly most promising. Indeed, the automobile business is to-day in a healthier condition than it has been previously. Manufacturers are learning what the public wants, partly because the public itself has at last begun to learn what it wants. Indeed, the ignorance of automobile buyers in the past has been one of the most annoying conditions of the business to the manufacturer. Those who have looked upon automobiles as being as perfect as the wishing carpets of fairy lore, and those who have looked upon automobiles as the impractical creations of the warped intellect of mere inventors, have now met on a common ground. The good points and the limitations of a motor vehicle are understood.

If one condition more than another requires remedying in the automobile business, we should say it was the frequent lack of business ability and failure to employ good business methods on the part of the retail dealer. There is ample profit in the retail end of the business when properly conducted, but undue sacrifices, with a view to keeping the good will of customers, splitting commissions, furnishing free repair parts and work not covered by any proper guarantee, allowing dangerous credits, and delays in collections of outstanding accounts, bring the same results in the automobile business that they bring in any other.

STUDEBAKER AUTOMOBILE COMPANY.
T. W. Goodridge, Gen. Man.
South Bend, Ind.

Motor Development.

Editor THE AUTOMOBILE:—

This company started in manufacturing steam engines for automobile purposes some five years ago, and manufactured some 500 5-horsepower steam engines, which were sold to the different consumers throughout the country. As soon as it was discovered that the field was opened for the manufacturing of gas engines, we immediately turned our attention to that engine. Our first year, 1901, was taken up in producing a 5-horsepower engine of two different types. Our second year was given up to our 10-horsepower single-cylinder engine, and the third year was given up to our double-opposed 20-horsepower, and four-cylinder vertical 30-horsepower.

While we are producing now from four to six times the power that we originally did, our prices have not increased to any considerable amount.

During these years we have not only had to perfect our engines, but have had to perfect the carbureter, pump, muffler, and transmission, in order that we might have a complete outfit for the consumer. The experimental work necessitated in building a first-class engine has been very expensive, and, up to the present time, very unprofitable. Our first year of real prosperity began this year, and we hope that it may continue; we have gotten beyond the experimental stage, and we are building all our engines with jigs, templets, finely equipped machines and interchangeable in standard.

As to the future of the automobile business, there can be no question that it must be one of the largest industries in this country.

The commercial field for this industry has scarcely been touched, but when once this field has been opened, the trade will be so large and the figures so great in dollars and cents that it will hardly be comprehended.

We are having inquiries every few days from parties requesting us to build for them commercial vehicles, which we have to refuse, and refer them to customers of ours who are purchasers of engines, as we do not manufacture complete vehicles. One party asked us to produce him a two-ton truck for draying purposes, these inquiries showing to us that there is a growing demand and a large one for this class of business.

MILWAUKEE MOTOR CO.
E. E. Warner, Prest.
Milwaukee, Wis.

Respect the Highway.

Editor THE AUTOMOBILE:—

To us the outlook for the automobile industry seems very promising; one-half of our output for 1905 has been contracted for, and we have every reason to believe that the balance will be disposed of at the coming shows in New York City and Chicago.

In regard to the industry in general, we believe every manufacturer of automobiles should exert his best efforts to produce a safe, reliable and durable machine. In the writer's opinion, nothing will injure the automobile industry as quickly as cheap, poorly constructed cars. Cheaper cars will come, and no doubt they will be good, but at the present time they cannot be built and sold for less than the prevailing prices of standard cars. High-speed for city and country driving should be discouraged; an average speed on country roads of twenty miles per hour is as fast as it is safe to travel. The driver of an automobile is supposed to be a highly intelligent human being with his car under perfect control, and it should be his duty every time to give way to the fractious horse.

The manufacturers of automobiles want the farmers to be their friends now; for the time is coming when they will be counted as among the best customers.

Automobile racing is great sport and should be encouraged, but only on specially prepared courses where the danger to both spectators and drivers has been reduced to a minimum. That the automobile has come to stay is an absolute certainty. It only remains for the manufacturers and drivers of cars to do everything reasonable in their power to overcome any prejudices that there may now be against them.

PIERCE ENGINE CO.
A. J. Pierce.
Racine Junction, Wis.

1905 Output Sold.

Editor THE AUTOMOBILE:—

Our opinion regarding the outlook of the automobile industry is one which applies directly to our own proposition. We have been too busy building and selling Wayne cars to take very much notice of what any one else is doing.

For our own part, we are thoroughly well satisfied with the outlook for the coming season. Most of our agency arrangements have been made, and we are practically assured of the sale of our entire output of our two-cylinder cars for 1905.

As you probably know, we are very busy with the Wayne four-cylinder car, which we shall exhibit at both the New York and Chicago shows. We expect big results from this model, as exhaustive tests have proved that it will really exceed our most sanguine expectations.

In conclusion, we can only say that we feel thoroughly satisfied with the results of our efforts and we confidently expect a most successful season.

WAYNE AUTOMOBILE CO.
Detroit. Roger J. Sullivan.

Advise Conservative Production.

Editor THE AUTOMOBILE:—

Referring to conditions of the automobile industry, I may say that every year thus far has seen it more firmly intrenched, and we believe that the ensuing year will show gains equal or superior to any year that has gone before. There are now more people than ever before who believe that the business of transportation over the streets and highways will be done by automobiles; and, of course, no one who has ever experienced the pleasure of handling a first-class pleasure automobile will ever be satisfied to fall back again to horses.

The 1905 models of American automobiles, while not exhibiting radical changes from 1904, will show such a decided improvement in details as will tend to eliminate most of the remaining objections, and we believe will establish the leading American-built machines as equal to any in the world, and will place the whole industry on a healthy and enduring basis. On the other hand, there will be a danger from the attempt to manufacture and sell large quantities of machines that have not been fully tried out; and there is a limit to the quantity that this or any country can absorb, and we are inclined to advise conservatism in the planning of production.

KNOX AUTOMOBILE CO.
E. H. Cutler, President.
Springfield, Mass.

Count on American Supremacy.

Editor THE AUTOMOBILE:—

We consider the present condition of the automobile industry encouraging, and the prospect bright for 1905. Our faith in the proposition is evidenced by our entrance into the field with the Marmon, a four-cylinder, air-cooled, double three-point suspension, gear-driven car, on which we have been at work for some time past.

For fifty-three years our business has been confined exclusively to the building of flour mills and milling machinery, and our plant and business has grown to very large proportions. Being desirous of engaging in other lines of manufacture, we decided to take up automobile work, which we consider most promising. With years of experience along the lines of high-grade mechanical work, talent, equipment, and an excellent organization, we were peculiarly fitted to take up with this important industry intelligently and with a full realization of the requirements.

We have installed special machine equipment, in addition to our already large and excellent facilities, including a foundry, in which we make our own aluminum castings for our double side-entrance tonneau and machinery parts. The wonderful success of all of our 1904 cars is bearing fruit in

bringing to us many orders and desirable agents for the season of 1905. Our car thus far has been in reality a revelation to old-timers in what could be accomplished at this early stage of American advancement, and the enthusiasm and universal approval with which it is being received in all quarters has opened our eyes to the future possibilities in the automobile industry. By strict adherence to good business policies in all branches, and conscientious work on the part of manufacturers, we can count on American supremacy and a lasting, prosperous industry.

NORDYKE & MARMON CO.

Indianapolis.

More Motorcycles.

Editor THE AUTOMOBILE:—

Our opinion on the outlook for 1905 for the automobile industry is naturally based on our own experience; we commenced building motorcycles in May, and find the sale of them is increasing steadily up to the present moment. We expect to more than quadruple our business in 1905.

We have recently approached the trade with an "automatic carbureter," and have been astonished at the quantities the automobile manufacturers are going to use next season. We are increasing our facilities for manufacturing, and the outlook for 1905 seems very bright for us.

BREEZE MOTOR MFG. CO.
Geo. Breeze.

Newark, N. J.

Want a Lot of Cars.

Editor THE AUTOMOBILE:—

In response to your request for our ideas on the 1905 outlook, we would say that beyond all doubt it is generally rosy in the extreme, and in particular in our own case. For more than six weeks we have been sending out circular letters to prospective agents, regretting our inability to place with any more of them except on a basis of deliveries six to eight months from date. As compared with past experience of manufacturers, it is certainly startling in the extreme; and, while more early buying by the agents than practiced heretofore may account for some of it, yet not for all; and the large volume of business which has already been done can only be accounted for by a general recognition on the part of agents everywhere that the people will want cars in 1905 and lots of them.

MITCHELL MOTOR CAR CO.,
G. V. Rogers, Sec.

Racine, Wis.

Plea for Decent Driving.

Editor THE AUTOMOBILE:—

What automobiling most needs is that the responsible users should help regulate the irresponsible users, so that the people who really own the highways may not have constant cause for complaint.

COMMERCIAL MOTOR CO.
A. H. Overman.

Jersey City, N. J.

From Thousands to Millions.

Editor THE AUTOMOBILE:—

While the automobile business is a comparatively new industry for America and Americans, it is rapidly forging its way toward the front, and 1905 will find it one of the leading manufacturing pursuits of the land. Like all other industries created by popular demand, the field contains some irresponsible makers, whose sole object is to enrich themselves; but these are gradually dropping out as the public becomes educated to the fact that in automobiles it is quality, not price, that counts.

Our company has sought to turn out an improved machine each year. We also endeavor to keep the price down within the reach of all, and our 40-horsepower model 25, which is our standard make for 1905, sells for $3,000. Our prices have been raised each year, as our product is improved, our first car, a three-wheel vehicle, selling for $700, while this year we put out models at $3,000, $3,500, $4,000 and $6,000.

Not only have our models been improved each year, and our prices raised accordingly to cover the increased cost in construction, but our business has more than doubled each year. From a few thousand dollars in 1898, when we occupied the upper floor of a building on Broadway, to a million and a half dollars this year, when our plant occupies three large factories on Niagara street, shows the advancement of the Thomas "Flyer," and goes to show that machines built on popular lines, well constructed, and offered for sale at reasonable prices, are in demand; and that this demand is increasing each year.

The outlook just at present is exceedingly rosy and our agents report great activity all along the line. Agents who formerly ordered two or three machines, are now placing their orders for twenty, thirty, or even forty machines; several of our agents having placed orders for the latter figure, sending in specifications and dates for delivery with their orders. It is a little too early to predict the conditions governing 1906; but, with the European market opening to American automobiles, we see no reason why this condition should not keep up for many years to come, and we firmly believe it will.

Judging from the reports sent in by our Mr. E. R. Thomas, who is studying conditions abroad, where the automobile "craze" (if it can be styled a "craze") has had a number of years more growth, the business is continually improving there, maker after maker of popular European cars having booked orders that will keep the factory going day and night for many months to come, some of them being practically sold out for two years ahead.

The automobile industry is a great one, and it is yet in its infancy.

E. R. THOMAS MOTOR COMPANY.
Percy F. Megargel.

Buffalo.

Better Springs Important.

Editor THE AUTOMOBILE:—

With one or two exceptions, automobiles to-day are sadly neglected in point of spring suspension; it is almost impossible to stay in some cars when driven over rough roads. Manufacturers are being attracted to pay more attention to springs by the success of the few exceptions alluded to, and so soon as cars are designed with proper springs, tires "stuffed with wind" will not have to be depended upon to take the jar off of the machinery.

The trouble, delay and road tinkering must be obviated to make the automobile practical and desirable for everybody. With one or two exceptions, the importance of spring suspension has been sadly overlooked by designers of our present automobiles; but the manufacturers in general are looking into this matter, and the future will develop the spring feature of automobiles so we can ride as in a Pullman car.

A. G. HENDEL.

Akron, Ohio.

A Profitable Season.

Editor THE AUTOMOBILE:—

We desire to state that from present indications the automobile industry will experience a very successful and profitable season during 1905. Our remarks on the subject are prompted by the observation of our representatives who are approaching the large manufacturers throughout the country. The interest in automobiles is on the increase, with every indication that the American public is becoming more enthusiastic as to the general usefulness of the latest products of the manufacturers.

CONTINENTAL CAOUTCHOUC CO.
Per Jos. Grossman.

New York.

A. L. A. M's Views.

Editor THE AUTOMOBILE:

Without any straining whatever of the facts there is abundant cause for a wholly optimistic regard of the prospect by automobile manufacturers and importers. There are sound reasons to expect a steady demand and to expect it to grow in an increasing ratio. That class of patrons who buy high class cars have not yet been satisfied. They are continuing to make changes and additions to their automobile possessions. Many of them, who have been purchasing foreign-made cars exclusively, are now adding to their holdings by the purchase of domestic machines. While these things are true of those who already are users of motor cars, it is not to be forgotten that the field for the sale of high-priced cars has not yet been fully developed. The wealthy aud luxury loving class in this country extends far beyond those members of it who are now owners of automobiles.

On the other hand the demand for medium and low-priced cars is increasing very rapidly among that very large class of Americans who are not wealthy, but are generally referred to as "well-to-do." With the great progress that has been made in the production of thoroughly efficient and reliable cars of moderate power and price, there has been growing an appreciation of the broad scope of the motor car's utility and its consequent economical possibilities. This is the most valuable fact for the industry, because the field for the sale of the highest priced cars being limited by the number of the wealthy class, it must be conceived that the mainstay of the industry in the future is to be the "well-to-do" class mentioned, who consider the cost of maintenance and the whole economy of automobiling; and this class are the buyers of the low and medium priced machines.

Thus, it may be considered that the best possible outlook is afforded by the fact that the popular spread of the demand, in the field that is practically limited, has begun while yet the restricted field has not been exhausted.

Another consideration that gives confidence in the future of the industry is that of the forces which are at work to check overproduction, ruinous price cutting and the flooding of the market with a lot of clap trap machines. The general public does not appreciate what has been done in this matter of preventing a lot of unconscionable trash from being unloaded upon it. In fact only those who are familiar with what the bicycle sport and industry suffered from the inrush of unscrupulous investors, who turned out machines "made to sell" and of such dangerously treacherous quality that their production was no less than a crime, can appreciate the virtue of the forces alluded to and which are still at work. Again and again have speculative capitalists been deterred from entering upon the production of automobiles "made to sell" by an investigation of the situation with regard to the licensees of the Selden basic patent and the attitude of their organization. Such men do not care to begin an investment with a lawsuit, and the amount of gaudy

scrapiron that has been prevented from being produced, in consequence of this situation, is inestimable.

Yet this phase of the question presents but one of the many ways in which the Association of Licensed Automobile Manufacturers has been a wholly beneficent institution. More than forty concerns in the automobile field have chosen not to plunder or to borrow without leave, but to recognize the right of the Selden basic patent holders and pay royalty to it. It is but a naturally human proceeding and one of sound commercial doctrine that these manufacturers and dealers should unite in resistance to any who seek to be freebooters. In prosecuting for infringement all who make, or sell, or use unlicensed cars the patent holders have acted only within their rights and in compliance with their obligations to their licensees. Yet, too often it is only this litigious side of the licensed makers' organization that is in the mind of those who do not know all it has accomplished. In no way has it restricted competition between its members and there is no agreement between them regarding prices. The leading producers who compose its membership have, however, been able to confer in confidence, and by exchange of information been able to reduce the cost of production and to help one another in many ways that have not interfered with their free competition in an open market. Many things are being done in this semi-co-operation of which it is not possible to speak here, but all of which are tending toward the production of better automobiles for the users of them. These remarks have been indulged in because it is not sufficiently appreciated that the protection of the manufacturer and dealer means the protection of the user. That such is the case is aptly illustrated by the traffic in imported cars. Speculators from Europe have visited us with cars to sell and have departed leaving a lot of sorrier and wiser customers. In some cases these irresponsible dealers have been known to sell cars of the model of the previous year while representing them to be new models. In protecting the licensed importers from the invasion of such men the Association of Licensed Automobile Manufacturers is giving to buyers the best possible protection and should be supported by them.

In considering the cars offered for 1905, one is almost overwhelmed by a contemplation of their general excellence. It is no longer fair to say that the American market is trailing behind the foreign manufacturers as the American 1905 models offer all of the general improvements, and four cylinder cars of high power are now listed by most of the producers in the United States.

While the great advance in the development of cars having big engines and great power is attracting so much attention, however, it should not be forgotten that there is a distinctively American type of car which is still developing and for which there unquestionably is a future. This American type is the horizontally posed engine, either of one cylinder or double cylindered, and has peculiar advantages of its own. It may be placed forward, or in the body of the vehicle, according to the style and purpose of the car, but of its perpetuity there is no doubt because, without any disparagement of the imported machines or the American cars having vertical engines, this typical American product has a field to itself.

Another American development that must not be lost to sight is that of the air cooled engine which in this country only has been made efficient, even in high powered cars.

New York. GEO. H. DAY.

Not an Optimist.

Editor THE AUTOMOBILE:—

For two year I have been an auto optimist, but optimism has now given place to absolute certainty. The automobile is an established factor in modern civilization, and the large and growing industry already established can look forward with confidence to a great future in which absolute utility will constitute the largest factor.

Meantime a great educational work is yet to be performed which must be assisted by careful and conscientious automobile construction by manufacturers of automobiles and accessories, and decent and intelligent automobile operation on the public streets and highways.

To this work of education and honest publicity THE AUTOMOBILE is respectfully dedicated, and its endorsement by the fraternity and the industry, and its progress in two years on straightforward journalistic principles to a position of trust and honorable mention, is very gratifying to its owners.

THE AUTOMOBILE,
H. M. Swetland, President.

New York.

Good and Better.

Editor THE AUTOMOBILE:—

The present condition of the automobile industry is good and the outlook for 1905 is still better.

H. H. FRANKLIN MFG. CO.,
H. H. Franklin, Mgr.

Syracuse.

So Are We.

Editor THE AUTOMOBILE:—

We are pleased indeed with the outlook for 1905.

FORD MOTOR CO.,
Chas. Grant.

Detroit.

News and Trade Miscellany.

Fisk Rubber Co. has fitted up very attractive headquarters at 754 and 756 Seventh avenue as a New York branch. J. W. Bawman, sales manager, will make this headquarters the general eastern sales department. The establishment has a complete repairing and vulcanizing department, and will carry in stock all sizes of Fisk tires. Arrangements have also been made for the accommodation of out-of-town manufacturers who may desire to make the establishment their headquarters during their stay in the city.

The Matheson Motor Car Co., of Holyoke, Mass., which has purchased five acres of land on the Grand Boulevard, Detroit, where a new factory will be erected in the spring, has opened a Detroit office at 910 Hammond Building, with F. A. Hinchman, who was recently elected treasurer, in charge. F. F. Matheson is secretary of the company. The main office, which is at present in Holyoke, will be removed to Detroit when the new factory is ready for occupancy.

George S. Waite, who for the past ten years has been manager of the Cleveland business of the White Sewing Machine Co. has resigned to go with the Royal Motor Car Co. Mr. Waite managed the White sewing machine business and the company's bicycle business up to two years ago, when the White Garage, one of the finest establishments in the country, was erected, and he was placed in charge. He has been unusually successful as a manager, his sales last year running close to 100 cars in Cleveland alone. Mr. Waite will be chief lieutenant to E. Shriver Reese, president of the Cleveland Automobile Company, and a leading stockholder of the Royal company. Mr. Reese has taken the Ohio sales agency for the Royal car. It is probable that Mr. Waite will open a downtown store, although this has not yet been decided upon.

The Boston Insurance Co., of Boston, Mass., issues an automobile insurance policy that covers gasoline and electric automobiles from loss by fire originating from any cause whatever, in any part of the United States, on coastwise steamers or on railroad cars. The policy appears to be a liberal one, and the company states that it is becoming quite popular among owners of automobiles.

The Long Manufacturing Co. has removed from La Salle avenue and Michigan street to the building at 381 to 385 Wabash avenue, Chicago. This change will give the company three times its former factory capacity and allow a much heavier production of its spiral tubing and radiators, for which it states a phenomenal demand has been experienced this season.

The Apperson Bros. Automobile Co., of Kokomo, Ind., has opened a New York branch house at 66 W. Forty-third street, in the building formerly occupied by the Brooklyn Automobile Co. L. A. Hopkins, formerly manager of the Brooklyn Automobile Co., will have charge of the new branch.

The Lorain Automobile Company, a new concern located at Lorain, O., will exhibit at the Cleveland show a new touring car that is said to have a number of interesting points.

About $5,000 of the necessary capital of $10,000 to secure the location at Bath, N. Y., of the Kirkham Motor Cycle Co.'s factory has been subscribed by Bath merchants. The committee in charge of the funds anticipates no trouble in securing the subscription to the other $5,000 within a short time. The company will employ about 40 men at the outset.

Leon Rubay, of 140 W. 38th St., New York, has recently returned from a trip to Paris, where he visited the Automobile Salon and at the same time arranged for the importation of electrical ignition goods from the firm of J. Lacoste & Co., Paris, for whom he is the New York representative.

The Allyne Brass Foundry Company, of Cleveland, which has a large patronage among automobile manufacturers for its brass, aluminum and composition castings, is preparing to establish a branch factory at Detroit, in order to better take care of the trade in that center. The company will erect a building 80 by 155 feet, located on a railroad site and having a frontage of 224 feet.

The McDuffee Automobile Company is building a new home at 1449 Michigan avenue, Chicago. The building will be opened February 1, with 4,000 square feet floor space. The Stoddard, Wayne, Dayton and Baker cars are handled by this firm. The new store will be one of the most attractive on "Automobile Row."

The Crucible Steel Forging Co., of Cleveland recently incorporated, has acquired the old factory of the Meriam-Abbott Co., on East Prospect street near Willson avenue, where it is equipping a forge shop. It will make a specialty of steel forgings for automobile work.

BIG DETROIT SHOW.

All Local Factories and Many from Outside to Have Large Exhibits.

Special Correspondence.

DETROIT, Jan. 9.—Great preparations are under way for the Fourth Annual Automobile and Sportsmen's Show at the Light Guard Armory, opening February 14. The exhibition will be the largest and most comprehensive ever held in Detroit, the list embracing fifty manufacturers. The sportsmen's exhibit has been almost entirely eliminated in favor of the automobile. Makers the country over are coming to recognize the advantage of exhibiting here as well as in Chicago or New York, and this year will see more of the big ones than ever before. Moreover, the best professional drivers of the country will be here—Oldfield, Kiser, Cooper, Lyttle, Webb, and our local lights—Schmidt of the Packard, and Kulick of the Ford.

Detroit is planning to hold her own against the rest of the world in this exhibition, and for the first time all the new 1905 models of the big local factories will be on view. They will go first to Madison Square Garden, thence to Chicago, and from there back to Detroit. Every one of the local firms will be represented at the Detroit show, and there is a great deal of rivalry. A big dog show and target shoot will be held as subsidiary features.

FIFTY-EIGHT EXHIBITORS.

Cleveland Show to Embrace the Leading Cars, Tires and Accessories.

Special Correspondence.

CLEVELAND, Jan. 9.—The rush for spaces for the Cleveland show, which is to be held at the Grays Armory the week of February 20, is unprecedented. Although nearly two months away, the spaces have all been apportioned, and dozens of applications have been turned down. The list of exhibitors includes fifty-eight concerns with seventy spaces, in which will be displayed the lines of all the leading automobile manufacturers and all the leading tire makers, accessories manufacturers and material people.

The Winton, Stearns, Peerless, White and Royal people will show practically the same exhibits that they will have in New York. The Baker company will have an elaborate exhibit especially designed for the Cleveland show. The committee has made arrangements so that Barney Oldfield, Earl Kiser and other prominent racing men will be here. A novel exhibit will be given by Col. J. H. Sprague, of Norwalk, who will have several miniature automobiles showing the canopy tops manufactured by his concern.

While automobilists are attending the show, the Cleveland Automobile Club will give an elaborate entertainment in the banquet room at the armory. This will consist of a banquet and vaudeville performance, and some of the best performers at the theatres that week will be engaged for the event.

BUFFALO ALLOTMENTS.

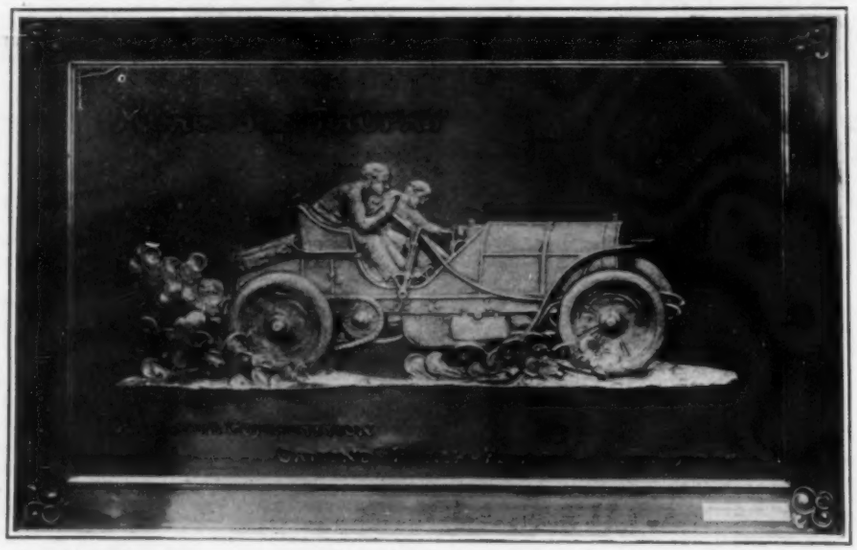
All Space in Convention Hall Apportioned for Show in March.

Special Correspondence.

BUFFALO, Jan. 10.—At a meeting yesterday of the show committee of the Buffalo Automobile Show, to be held in March in the City Convention Hall, every inch of space on the main floor was allotted. Some of the ante-rooms may have to be used for exhibition purposes.

The stage will be occupied by the Duquesne Motor Car Co., of Jamestown. On the main floor in the middle sections will be the Alexander Weller Co., Knox Automobile Co., Poppenberg Automobile Co., showing the Rambler, National, Queen and Dumont; P. W. Eigner, E. R. Thomas Motor Co., Buffalo Electric Carriage Co., Roe Automobile Co., showing the Autocar; G. N. Pierce Co., W. C. Jaynes Automobile Co., showing the Winton, Pope-Toledo and Oldsmobile Co.; Brunn Carriage Co., showing the Stevens-Duryea; J. A. Cramer, showing the Ford, Maxwell and Marion; Centaur Motor Co., showing the Packard, Peerless, Franklin, Yale and Cadillac.

Some of the firms having space in the middle sections will also have booths along the sides. Additional exhibits along the sides will be made by the Twyford Motor Car Co., Brockville, Pa.; O. K. Machine Works, Buffalo, and Hartford Rubber Works Co. Ephraim Bros., Grav & Davis, lamps; B. F. Goodrich Co., Jackson Automobile Co., Buffalo; Rose Mfg. Co., Standard Oil Co., Diamond Tire Co., Prescott Automobile Co., and Goodyear Tire and Rubber Co.



MERCEDES TROPHY FOR ORMOND MEET, ON EXHIBITION AT IMPORTERS' SALON, NEW YORK.

SPECIAL TRAIN FOR EXHIBITS.

New York Displays Going Direct to Philadelphia Show.

Special Correspondence.

PHILADELPHIA, Jan. 9.— "O, for a building as large as Madison Square Garden!" exclaimed Manager H. D. LeCato on Saturday, while discussing the prospects for the coming local show, which will be held in the First Regiment Armory, during the week following the New York exhibition. "Not only have we been compelled to relegate some important exhibits to out-of-the-way company rooms, but in laying out plans we had to limit the amount of space allowed exhibitors in order to accommodate as many applicants as possible on the main floor of the armory."

According to Manager Le Cato, arrangements have been made with the Reading Railway Company for a special freight train to transport, to this city, many large exhibits entire from the New York Show, on the Sunday after the closing of that exhibition. The train will be loaded at Jersey City, and will be run to the freight yards at Broad and Callowhill, across the street from the armory, reaching here some time Sunday afternoon.

In order to allow for the installation of the New York exhibits, the show will not be officially opened until Monday afternoon.

Manager Le Cato says that the exhibits of the Knox, Winton, Autocar, Packard, Maxwell, Pope-Toledo, Oldsmobile, White and Franklin machines, will be most comprehensive, and from the central location of the exhibition building, predicts much larger returns in a business way to exhibitors and a greater attendance by the general public, than at any automobile show ever held in this city. And when it is remembered that every previous show was a decided success, the verification of this prediction will mean a great deal.

TO SURVEY ST. LAWRENCE COURSE.

Special Correspondence.

MONTREAL, Jan. 7, 1905.—The report comes from Brockville, Ont., that surveying is soon to be commenced on a proposed course for power boat races on the St. Lawrence river next season; the expense of the survey to be borne by a number of wealthy islanders. The course will probably start at Alexandria Bay and extend around Whisky Island, and will be marked by a number of floating buoys. As the boats in the region of the Thousand Islands have been classed under the rules of the American Power Boat Association, it is anticipated that attempts will be made next reason to clip a few seconds from the mile record. A large number of men are employed at Alexandria Bay constructing different models, with the object in view of making them the speediest in their respective sizes.

BUILDING AN "AIR-SHIP"?

Special Correspondence.

TOLEDO, Jan. 9.—It leaked out last week that the Pope Motor Car Company is working on a dirigible balloon like the Baldwin Arrow, to be used by A. C. Webb, who drove a Pope-Toledo in the Vanderbilt Cup race, and who is the designer of the "air-ship." Webb, who has just left for the South, to participate in forthcoming races there, expects, upon his return, to give the balloon a trial, as it is expected to be finished in a few weeks. Details regarding the balloon are unobtainable, as the company has kept the matter secret so far.

SECOND NEW YORK SHOW NUMBER

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THE AUTOMOBILE

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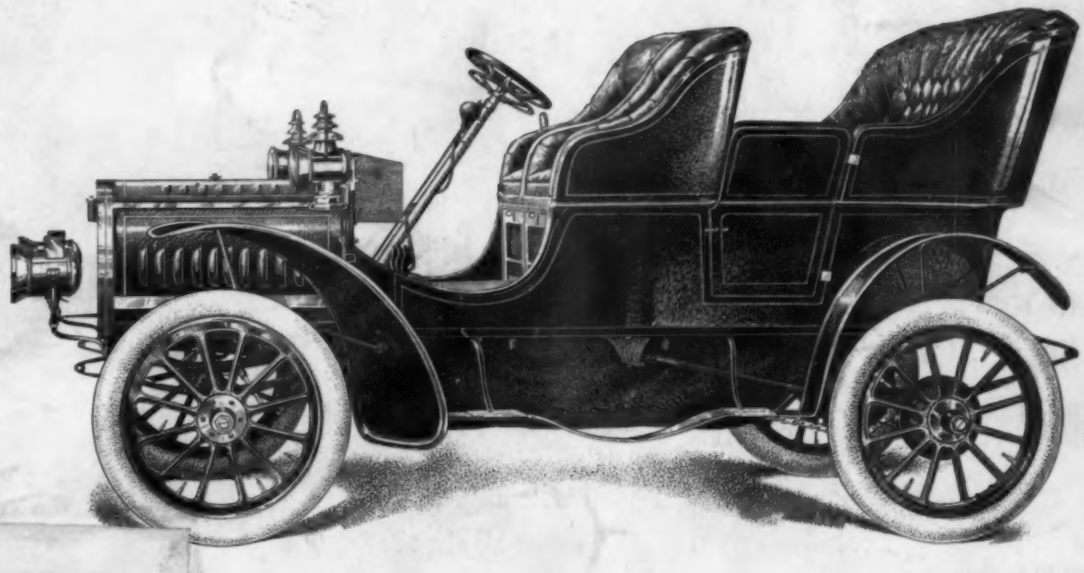

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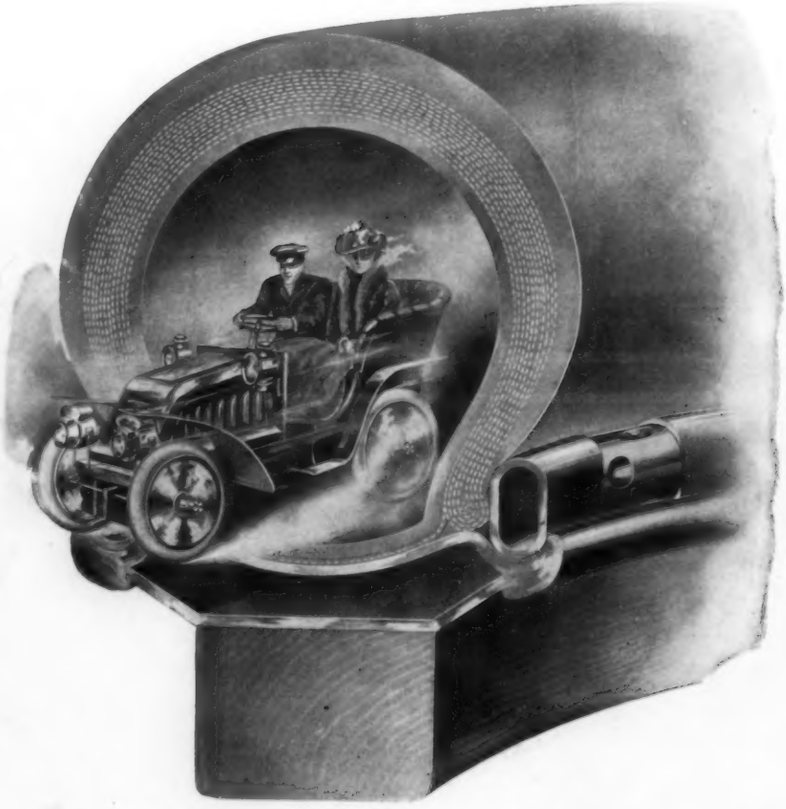

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